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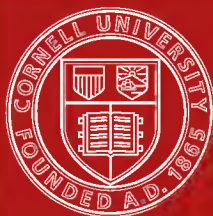
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Hearings before the Committee on expendi



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HEARINGS

BEFORE THE

COMMITTEE ON EXPENDITURES IN THE DEPARTMENT OF AGRICULTURE,

HOUSE OF REPRESENTATIVES.

FIFTY-NINTH CONGRESS,
SECOND SESSION.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1907.

CHRONOLOGICAL REFERENCE LIST OF HEARINGS.

January 5, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. H. B. Flood,
Hon. E. W. Samuel.

Witnesses:

F. V. Berry,
Joel Grayson,
J. R. Halvorsen,
W. L. Post,
W. P. Scott,
A. Smith.

January 7, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. E. S. Candler, jr.,
Hon. C. R. Davis,
Hon. R. C. Davey,
Hon. H. B. Flood,
Hon. E. W. Samuel.

Witnesses:

S. R. Burch,
G. W. Hill,
W. L. Moore.

January 8, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. E. S. Candler, jr.,
Hon. H. B. Flood,
Hon. E. W. Samuel.

Witnesses:

W. L. Moore,
H. K. McCay,
J. A. Robinson.

January 10, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. E. W. Samuel.

Witness:

W. L. Moore.

January 12, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. H. B. Flood,
Hon. E. W. Samuel.

Witnesses:

H. F. Ashion,
W. E. Cochran,
S. R. Jacobs,
A. D. Melvin,
H. H. B. Meyer,
J. A. Robinson,
E. Russel,
(M. W. P. Zantzinger),
A. Zappone.

January 14, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
 Hon. H. B. Flood,
 Hon. E. W. Samuel.

Witness:

A. D. Melvin.

January 15, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
 Hon. H. B. Flood,
 Hon. E. W. Samuel.

Witnesses:

H. F. Ashion,
 G. P. McCabe.

January 17, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
 Hon. E. W. Samuel.

Witnesses:

B. T. Galloway,
 C. P. Neill,
 V. H. Olmsted,
 W. L. Post,
 A. T. Ruan,
 (Hon. W. C. Lovering.)

January 19, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
 Hon. H. B. Flood,
 Hon. E. W. Samuel.

Witnesses:

Miss J. A. Clark,
 B. T. Galloway,
 A. Zappone.

January 21, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
 Hon. E. W. Samuel.

Witnesses:

M. Whitney,
 H. W. Wiley.

January 22, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
 Hon. E. W. Samuel.

Witnesses:

L. O. Howard,
 M. Whitney.

January 24, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
 Hon. E. W. Samuel.

Witness:

A. C. True.

CHRONOLOGICAL REFERENCE LIST OF HEARINGS.

January 25, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. E. W. Samuel.

Witnesses:

G. W. Hill,
C. H. Merriam,
L. W. Page.

January 29, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. E. W. Samuel.

Witnesses:

B. T. Galloway,
Hon. J. W. Wadsworth,
A. Zappone.

January 30, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. H. B. Flood,
Hon. E. W. Samuel.

Witnesses:

O. P. Austin,
Miss L. Burch,
J. H. Blodgett,
C. C. Clark,
G. R. Ferguson,
H. C. Graham,
E. J. Lundy,
Mrs. E. Noah,
V. H. Olmsted,
Miss C. O'Donoghue,
J. G. Pepper,
G. Pinchot,
Le Grand Powers,
(O. W. Price),
Miss F. Schmidt,
W. M. Steuart,
I. W. Stone.

February 1, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman.

Witnesses:

Hon. H. S. Burleson,
Hon. E. S. Henry,
Hon. C. F. Scott.

February 2, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. E. W. Samuel.

Witnesses:

Hon. J. Lamb,
G. Pinchot,
(O. W. Price).

February 16, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. H. B. Flood,
Hon. E. W. Samuel.

Witnesses:

J. B. Adams,
J. R. Garfield,
G. Pinchot.

February 20, 1907.

PRESENT.

Committee:

Hon. C. E. Littlefield, Chairman;
Hon. E. W. Samuel.

Witness:

G. Pinchot.

PRINTING AND BINDING OF CONGRESSIONAL DOCUMENTS.

COMMITTEE ON EXPENDITURES IN THE DEPARTMENT OF AGRICULTURE, HOUSE OF REPRESENTATIVES, *Washington, D. C., January 5, 1907.*

The committee met this day at 9.30 o'clock a. m., Hon. Charles E. Littlefield in the chair.

Present: Messrs. Littlefield, Samuel, and Flood.

The CHAIRMAN. Gentlemen, inasmuch as this is the first time that this committee has met for the purpose of doing any work, unless there is objection I think it may be well enough to have stated, as part of the record, the provisions of the law, the only provisions of the law that have reached my attention or been called to my attention, in relation to the reports of the Department of Agriculture in connection with their expenditures. They are as follows:

In 1878 the Statutes at Large, volume 20, page 203, contain this paragraph:

The Commissioner of Agriculture shall present a detailed statement of the manner of the expenditure of this sum, to accompany his estimates to be presented at the next regular session of Congress.

And on March 3, 1885, chapter 338, Statutes at Large, it was provided:

And in addition to the proper vouchers and accounts for the sums appropriated for the said Department to be furnished for the accounting officers of the Treasury the Commissioner of Agriculture shall, at the commencement of each regular session, present to Congress a detailed statement of the expenditure of all appropriations for said Department for the last fiscal year.

In this connection also it may be well to have the rule of the House under which this committee acts appear in the record, and that is as follows:

RULE XI.

POWERS AND DUTIES OF COMMITTEES.

All proposed legislation shall be referred to the committees named in the preceding rule, as follows, viz: Subjects relating,

* * * * *

42. The examination of the accounts and expenditures of the several Departments of the Government and the manner of keeping the same; the economy, justness, and correctness of such expenditures; their conformity with appropriation laws; the proper application of public moneys; the security of the Government against unjust and extravagant demands; retrenchment; the enforcement of the payment of moneys due to the United States; the economy and accountability of public officers; the abolishment of useless offices; the reduction

or increase of the pay of officers, shall all be subjects within the jurisdiction of the nine standing committees on the public expenditures in the several Departments, as follows:

43. In the Department of State: to the Committee on Expenditures in the State Department;

44. In the Treasury Department: to the Committee on Expenditures in the Treasury Department;

45. In the War Department: to the Committee on Expenditures in the War Department;

46. In the Navy Department: to the Committee on Expenditures in the Navy Department;

47. In the Post-Office Department: to the Committee on Expenditures in the Post-Office Department;

48. In the Interior Department: to the Committee on Expenditures in the Interior Department;

49. In the Department of Justice: to the Committee on Expenditures in the Department of Justice;

50. In the Department of Agriculture: to the Committee on Expenditures in the Department of Agriculture;

51. On Public Buildings: to the Committee on Expenditures on Public Buildings.

In addition to this rule this committee thought it wise to have a special additional resolution on the part of the House, which may well appear here:

Whereas no examination of the expenditures in the Department of Agriculture has been made by the Committee on Expenditures in the Department of Agriculture for a number of years and such an examination is now necessary in the interest of the public service; and

Whereas said examination can not be had by said committee unless authority therefor be conferred upon said committee: Therefore,

Resolved, That the Committee on Expenditures in the Department of Agriculture is hereby authorized to examine, so far as the Department of Agriculture is concerned, all of the matters referred to in paragraph 42 of Rule XI of the House of Representatives, and for that purpose it may send for persons and papers; and said committee is authorized to employ a competent stenographer while conducting said examination and to sit during the sessions of the House, and to report the result of its examination with any recommendations to the House.

Any expenses incurred hereunder to be paid from the contingent fund of the House on the certificate of the chairman of the committee and approval of the Committee on Accounts.

Learning that under the legislation hereinbefore quoted the Secretary of Agriculture had been making reports to each regular session of Congress, and learning also that as a rule these reports had been published as public documents, I have made inquiries of the Public Printer for the purpose of ascertaining what the expense of such publications has been from time to time. In reply I have received from him a letter under date of May 11, 1906, giving the cost of printing and publication up to and including House Document No. 448 of the Fifty-ninth Congress, which letter may become a part of the record:

GOVERNMENT PRINTING OFFICE,
OFFICE OF THE PUBLIC PRINTER,
Washington, D. C., May 11, 1906.

SIR: In compliance with your verbal request, I have the honor to give below the estimated cost of printing 1,850 copies each of the documents named by you:

House Miscellaneous Document No. 154, Forty-ninth Congress, first session -----	\$357.05
House Miscellaneous Document No. 20, Forty-ninth Congress, second session -----	349.50

(Witness: Grayson.)

House Miscellaneous Document No. 122, Fiftieth Congress, first session	662. 55
House Executive Document No. 104, Fifty-first Congress, first session	800. 25
House Executive Document No. 35, Fifty-first Congress, second session	772. 15
House Executive Document No. 55, Fifty-second Congress, first session	1, 091. 85
House Executive Document No. 14, Fifty-third Congress, second session	1, 697. 80
House Executive Document No. 8, Fifty-third Congress, third session	1, 465. 40
House Document No. 25, Fifty-fourth Congress, first session	1, 519. 35
House Document No. 26, Fifty-fifth Congress, second session	1, 782. 30
House Document No. 23, Fifty-fifth Congress, third session	1, 747. 10
House Document No. 173, Fifty-sixth Congress, first session	1, 912. 10
House Document No. 29, Fifty-sixth Congress, second session	2, 014. 25
House Document No. 29, Fifty-seventh Congress, first session	2, 227. 10
House Document No. 34, Fifty-eighth Congress, first session	3, 542. 20
House Document No. 256, Fifty-eighth Congress, third session	3, 873. 20
House Document No. 448, Fifty-ninth Congress, first session	^a 4, 753. 60

Copies of the publications mentioned above submitted by you are returned herewith.

Very truly, yours,

CHAS. A. STILLINGS,
Public Printer.

Hon. C. E. LITTLEFIELD,

House of Representatives, Washington, D. C.

The following resolution was also adopted, conferring additional authority upon the Committee on Expenditures in the Department of Agriculture, March 19, 1906:

Resolved, That the Committee on Expenditures in the Department of Agriculture be authorized to have such printing and binding done as may be required in the transaction of its business.

That is found on page 3976 of the Congressional Record, volume 40, Part IV, Fifty-ninth Congress, first session.

STATEMENT OF MR. JOEL GRAYSON, AN EMPLOYEE OF THE DOCUMENT ROOM OF THE HOUSE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. Do you have charge of the document room, Mr. Grayson?

Mr. GRAYSON. No; Mr. Sumner has, but I have charge of it when he is not here, all through the summer. He is the superintendent, but I have charge of the document part of the work.

The CHAIRMAN. How long have you been there?

Mr. GRAYSON. I have been in the document room since 1881. I have been in the Government service since 1875.

The CHAIRMAN. Calling your attention to Document 448, "Expenditures in the Department of Agriculture," I want to inquire how many copies of such document are printed by the Printing Office?

Mr. GRAYSON. Of this the regular number is 1,854.

The CHAIRMAN. That would cover documents of that character during the last session of Congress and during the preceding Congresses up, say, to the Forty-ninth Congress?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. How many copies of such documents are forwarded to or deposited with the document room of the House?

^a The total cost, including all binding, etc., was \$5,305.96.

(Witness: Grayson.)

Mr. GRAYSON. Four hundred and twenty copies of a House document; 360 of a Senate document.

The CHAIRMAN. The "Expenditures in the Department of Agriculture" is, however, a House document, is it not?

Mr. GRAYSON. Yes; but it does not necessarily follow that all the expenditures are House documents. Some are referred to the Senate. Whichever body gets them first prints them.

The CHAIRMAN. Does the Senate committee get any report from the Department of Agriculture, so far as you know?

Mr. GRAYSON. No, sir; I do not think they do.

The CHAIRMAN. So that the public documents which consist of "Expenditures in the Department of Agriculture" would be House documents?

Mr. GRAYSON. Yes.

The CHAIRMAN. And they would be reports that would be referred to the Committee on Expenditures in the Department of Agriculture and then printed?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. Do you know how they have been printed—under general order or by special direction of any officer of the House?

Mr. GRAYSON. I think they have been printed under a general order. There was a law for it, at least up to that time. I do not know whether that law has been changed or not.

The CHAIRMAN. Could you give the committee any idea of the extent of the use that is made of this public document? That is, how many are taken out and distributed?

Mr. GRAYSON. I do not think, Mr. Littlefield, that we have calls for over 15 or 20 at any time.

The CHAIRMAN. And from whom do those calls mainly come?

Mr. GRAYSON. Mostly from the Department, or from newspaper people who are trying to get something.

The CHAIRMAN. Your judgment, then, is that 15 or 20 copies would be practically all the use that has ever been made of this document since the Forty-ninth Congress?

Mr. GRAYSON. Yes.

The CHAIRMAN. What is done with the balance of the 420 copies that are filed in the document room?

Mr. GRAYSON. Up to last year we got the full number. Now, this year, as you will see there [submitting printed tabulation], we get 50 copies.

The CHAIRMAN. That is, since 1905 you get only 50 copies of the detailed "Expenditures in the Agricultural Department?"

Mr. GRAYSON. Yes, sir. This shows it. It is 1,854. I thought I had it 1,850. The usual total number is 1,854.

Mr. SAMUEL. That is the number printed?

Mr. GRAYSON. Yes, sir. We get 50 copies now where we used to get 420.

The CHAIRMAN. Prior to the last session of Congress you were getting 420 copies?

Mr. GRAYSON. Yes; of everything that came in.

The CHAIRMAN. Four hundred and twenty copies out of a total of 1,854?

Mr. GRAYSON. Yes, sir.

(Witness: Grayson.)

The CHAIRMAN. And now you are getting in the document room 50 copies out of a total of 1,100?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. So that there is now being printed as a House document 1,100 copies of the detailed statement of "Expenditures in the Department of Agriculture?"

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. And you say there have never been more than 15 or 20 calls for that document since the Forty-ninth Congress?

Mr. GRAYSON. Yes; and sometimes there has been no call, unless it is from some newspaper men. Last year, for instance, there was an inquiry in regard to it—in regard to Mount Weather. That was gotten up for the newspapers. There is a little demand for that.

The CHAIRMAN. What is done with the copies not called for?

Mr. GRAYSON. Under the act of Congress, under the direction of the Committee on Accounts, we have authority to go into this matter. It is thrown out, and put in the waste paper and sold, and the money put in the Treasury.

The CHAIRMAN. That is, copies over 15 or 20 are sold for waste paper?

Mr. GRAYSON. Yes; it goes into the waste paper sale.

Mr. FLOOD. You say prior to the past year they printed 1,854 copies and last year only 1,100?

Mr. GRAYSON. Yes, sir.

Mr. FLOOD. Who ordered that reduction?

Mr. GRAYSON. It was brought about in this way: I went to the Committee on Printing and complained of this stuff being printed and being left down in the room there rotting and——

The CHAIRMAN. You called their attention to it as being perfectly useless?

Mr. GRAYSON (continuing). Yes; they saw it themselves, packed away in the vaults and water getting in on it. It would come in there one day and be thrown out the next. It was absolutely useless. They got together and formed this table [indicating printed tabulation].

The CHAIRMAN. And reduced the numbers?

Mr. GRAYSON. Yes. They said we could make an order, if we found that any document was called for, and they could print it and put it back on the press.

Mr. FLOOD. Did you state to them that only 15 or 20 copies were called for?

Mr. GRAYSON. I think I put down the number of each document in blue lead pencil.

Mr. FLOOD. Why, then, did they still order so large a number?

Mr. GRAYSON. They did not interfere with the reserve at all. That would be interfering with books that belong to you Members of Congress. It would take a law to do that, just the same as taking them out of the folding room. The committee is a joint committee. They have power to change, but I do not think if it was insisted on they could cut any of it out. It was simply done to save money.

The CHAIRMAN. As I understand it, there has been no affirmative change of law, but the committee have undertaken to make a regulation and reduce the amount of printing?

(Witness: Grayson.)

Mr. GRAYSON. Yes.

Mr. FLOOD. Do you know what the difference of cost would be of printing 1,854 copies and 1,100?

Mr. GRAYSON. No, sir.

Mr. SAMUEL. Are those documents placed to the credit of each Member pro rata?

Mr. GRAYSON. No, sir; they are not furnished unless they are valuable. If each Member would send in and say, "I want my "Expenditures of the Agricultural Department," we could not supply it; but we take what has been called for before as a precedent to go by.

Mr. FLOOD. As I understand, a copy of this is sent to each Member and Senator?

Mr. GRAYSON. No, sir; only 50 copies are furnished to the document room.

Mr. FLOOD. No; but 1,100 are printed altogether.

Mr. GRAYSON. That is the reserve.

The CHAIRMAN. I have before me the document which you have presented, entitled "Regulations of the Joint Committee on Printing, making effective public resolution 14, Fifty-ninth Congress, to prevent unnecessary printing and binding and to correct evils in the present method of distribution of public documents, approved March 30, 1906," and the schedule annexed to those regulations with reference to the detailed expenditure of appropriations in the Department of Agriculture provides as follows—first in relation to "up-number." Let me inquire as to what that signifies.

Mr. GRAYSON. That is the unbound documents that come to the Capitol.

The CHAIRMAN. This schedule provides under the head of "Up-number" as follows, in connection with the statement of the expenditures of the Agricultural Department: House document room, 50; that is, against 420 prior to that regulation?

Mr. GRAYSON. Yes.

The CHAIRMAN. Clerk of House, 15, which is the same as before; Senate document room, 50, which is the same as before; Secretary of the Senate, 5, which is an increase of 2; State Department, none; Executive Mansion, 2, the same as before; Library of Congress, 5, which is the same as before; superintendent of documents, 2, which is the same as before; legations, 34, which is the same as before; Executive Departments and files, 62, which is the same as before; making a total of 225 of "up-numbers," as against 724, the previous total of "up-numbers." Is that correct?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. I find in addition in this schedule, under the title of "Reserve," the following numbers provided for: 502, superintendent of documents, depositaries, the same as before—

Mr. GRAYSON. He will tell you about that himself. That is to send out to libraries.

The CHAIRMAN (continuing). 53 to the Smithsonian Institution, foreign exchanges, the same as before; 5 to the House and Senate libraries, the same as before—no, 5 for the Senate library, as against 15, and 5 for the House library, as against 15 before; 9 to the Library of Congress, the same as before; 1 to the State Department, the same as before; a total of 575, as against a previous total of 595.

(Witness: Grayson.)

Under the title of "unbound," 300 under the head of "Public Printer (held for binding)," as against 497, and none for the Library of Congress, as against 38 before; making a total usual number under the existing regulation of 1,100, as against 1,854, and a total reserve under the existing regulations of 875, as against a total reserve prior thereto of 1,130. Is that a correct statement of the regulations?

Mr. GRAYSON. Yes, sir; that is right there.

The CHAIRMAN. Are there any other statements of expenditures from any of the other Departments that are printed as public documents, so far as you know?

Mr. GRAYSON. All of them furnish statements, and the different bureaus furnish them, too.

The CHAIRMAN. Are they all printed as public documents?

Mr. GRAYSON. Yes.

The CHAIRMAN. For instance, does the Department of State furnish a list of expenditures similar to that of the Department of Agriculture?

Mr. GRAYSON. Yes.

The CHAIRMAN. And the Treasury Department, and the War Department, and the Navy Department, and the Post-Office Department, and the Interior Department, and the Department of Justice?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. And on public buildings?

Mr. GRAYSON. I do not think so.

The CHAIRMAN. But with the exception of public buildings these other Departments furnish a report similar to that of the Department of Agriculture?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. The report of the Department of Justice, so far as the expenditures are concerned, appears in the annual report of the Attorney-General?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. In the Navy Department prior to this regulation they printed the same number of copies—1,854—and they are now printing 1,100. Is that correct?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. And you are getting the same number under the new regulations of Navy Department expenditures as you get of the Agricultural Department?

Mr. GRAYSON. We get just the same all the way through.

The CHAIRMAN. Have you any more call for the Navy Department expenditures than for the Department of Agriculture?

Mr. GRAYSON. I do not think so. I think it is about the same.

The CHAIRMAN. Then all these Departments to which I have called your attention submit substantially the same kind of lists of detailed expenditures?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. And there is no more use made of the lists from the other Departments, as a rule, than of the list furnished by the Department of Agriculture?

Mr. GRAYSON. No, sir.

The CHAIRMAN. That is according to your recollection?

Mr. GRAYSON. Yes, sir.

(Witness: Grayson.)

The CHAIRMAN. How many copies, in your judgment, would be sufficient to be printed of this list of expenditures of the Department of Agriculture, so far as their real, actual use is concerned? Or have you not made any estimate on that line?

Mr. GRAYSON. I could not say. I think 50 copies supply us with all we need. In fact, we do not have use for that number, but in case we should have, it is better to have a few on hand than not to have any.

The CHAIRMAN. Yes. I notice by these regulations that the annual report of the Agricultural Department prior to the adoption of these regulations consisted of 4,854 copies, and under the new regulations 2,986, and that the number deposited in the document room was 420, and that you now have, under the new regulation, 100 copies. Will you be kind enough to state to the committee how much call there is at the document room for that report?

Mr. GRAYSON. That is not the Yearbook?

The CHAIRMAN. No; I should say not; it is the annual report.

Mr. GRAYSON. We do not have much of a call for it, but we do have more of a call for it than for the "Expenditures." There is very little call for that. That is not the Yearbook.

Mr. FLOOD. You do not have any Yearbooks sent to the document room, do you?

Mr. GRAYSON. Yes, sir.

Mr. FLOOD. How many?

Mr. GRAYSON. We get the usual number. We get the full number of that—420 copies.

The CHAIRMAN. Could you give any approximate estimate of the number of copies of the annual report that are called for?

Mr. GRAYSON. No, sir. We do not have but very few of them left anyway, but I could not say how many are used.

Mr. FLOOD. You do not have many left?

Mr. GRAYSON. No, sir.

Mr. FLOOD. Then they are called for?

Mr. GRAYSON. Not necessarily. At the end of the session we would save 15 or 20 copies and put them on the stacks.

Mr. FLOOD. What is done with the rest?

Mr. GRAYSON. They are sold for waste paper.

The CHAIRMAN. You say at the end of a Congress you save out 15 or 20 copies?

Mr. GRAYSON. Yes; generally about 15, so that if anyone called for a back number we could supply it. We have those stored down in the terrace.

The CHAIRMAN. And the balance you throw away?

Mr. GRAYSON. Yes; they are thrown in the waste paper.

The CHAIRMAN. How many would that be?

Mr. GRAYSON. I could not say, but I know only a few are called for.

Mr. FLOOD. What disposition do you make of the Yearbooks?

Mr. GRAYSON. We have been binding those for Members.

Mr. FLOOD. Do Members get them in addition to their regular quota?

Mr. GRAYSON. Only one copy.

Mr. FLOOD. They get that copy from you?

(Witnesses: Grayson, Smith.)

Mr. GRAYSON. They are supposed to. They do not always send in.

Mr. FLOOD. What becomes of those not sent for?

Mr. GRAYSON. One Member might come in and want two or three copies of it, and we would give them to him.

The CHAIRMAN. Have you any method of calculating or ascertaining, except by approximate estimate, how many copies of these various documents are called for?

Mr. GRAYSON. No, sir.

The CHAIRMAN. All you could do is simply to state your general recollection of the facts?

Mr. GRAYSON. Yes. The Yearbook is generally called for, and the Report of the Secretary of the Navy goes out a great deal.

The CHAIRMAN. Here is the "Report of Operations of the Bureau of Animal Industry." There are now only 150 copies. Is that because there is not much call for it?

Mr. GRAYSON. There is not much call for it. It is on a par with the others there.

The CHAIRMAN. It is about the same as the statement of expenditures?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. I find of the Animal Industry Bureau reports of the Department you have 420 copies called for.

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. Of those you have not any to throw away?

Mr. GRAYSON. No, sir; we never throw away those.

Mr. FLOOD. What is that of?

The CHAIRMAN. The Animal Industry Bureau reports.

Mr. GRAYSON. I mean they are not thrown away for waste paper.

The CHAIRMAN. What comes in besides the Department reports, the Statement of Expenditures, the Animal Industry Reports, the Report of Operations, and the Yearbook of the Department that you now remember?

Mr. GRAYSON. I do not remember any, except communications sent by the President to the House in answer to requests for information, or something of that kind. We have something about sugar beet. That is another one.

The CHAIRMAN. That is not a regular document?

Mr. AMZI SMITH. It has been for six or eight years.

The CHAIRMAN. It seems to be dropped out of this list here. Now, of the Yearbook of the Department of Agriculture you have the same allotment now that you have had heretofore, 420 volumes?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. We understand that those are quite generally called for, and the allotment is exhausted substantially?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. Of the "Beet-sugar Industry in the United States, Progress," from the Agricultural Department, you have 100 under the new allotment, as against 360 heretofore.

Mr. GRAYSON. That is being called for, and I think this year the superintendent put in a request for the full quota. Last year we had a big demand. I do not know whether it was because of the agitation of the Cuban question, or what, but the demand came in for it.

(Witnesses: Grayson, Smith.)

The CHAIRMAN. Did the demand practically exhaust the supply in the document room?

Mr. GRAYSON. Yes, sir; but if we run short of a document that way we go to Mr. Smith and trade around and get them from him. He has charge of the Senate document room. If he gets short over there for anything, he comes over and we exchange with him.

Mr. SMITH. We exchange frequently, and save reprinting by so doing.

Mr. FLOOD. What is the necessity of the Yearbook being sent to the House document room?

Mr. GRAYSON. I do not think there is any.

Mr. FLOOD. Are not Members allotted by the Agricultural Department each year?

Mr. GRAYSON. The House prints so many that go through the folding room. I do not think the Department does.

Mr. FLOOD. The Members get these copies——

Mr. GRAYSON. From the folding room.

Mr. FLOOD. And in addition to that they get them through your office?

Mr. GRAYSON. Yes. The order to print carries with it the unbound copies, the "up-number," as it is called, unless otherwise ordered.

Mr. FLOOD. And there is really no necessity of this book being sent to the House document room?

Mr. GRAYSON. Not really.

Mr. FLOOD. Because you assign it to the Members after it gets there, and they can get it elsewhere, a number of copies?

Mr. GRAYSON. Yes; but still that comes in under the general act.

The CHAIRMAN. Are we to understand that the documents that have been heretofore classified under the head of "up-number" and "reserve," aggregating, in the case of the "Detailed statement of expenditures in the Agricultural Department" prior to the adoption of these regulations, 1,854, have been all that have been heretofore published by the Government for any and all purposes?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. In other words, 1,854 copies are all that have been heretofore published under the provisions of the general law that would be automatically operating?

Mr. GRAYSON. Yes, sir.

The CHAIRMAN. And if any additional copies of this document or any other document standing in like relation to the general law are published, it is by virtue of some special resolution relating thereto?

Mr. GRAYSON. Yes, sir.

Mr. FLOOD. What do you mean by "up-number?" I did not catch that.

Mr. GRAYSON. That is the unbound number that comes to us. The "up-number" is the Congressional number printed for the House and Senate and the Departments.

(Witness: Smith.)

STATEMENT OF MR. AMZI SMITH, SUPERINTENDENT, DOCUMENT ROOM OF SENATE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You are the superintendent of the Senate document room?

Mr. SMITH. Yes, sir.

The CHAIRMAN. Will you be kind enough to state, for the information of the committee, how many copies of the document entitled "Detailed statement of expenditures of the Agricultural Department" are ordinarily called for in your document room?

Mr. SMITH. Very few. I think it was cut down from 150 to 50 last year under the new law.

The CHAIRMAN. It was cut down in the House document room from 420 to 50 and in the Senate document room from 150 to 50?

Mr. SMITH. Yes.

The CHAIRMAN. We are told by Mr. Grayson that the call in the House document room only amounts to something like 15 or 20, and during some of the sessions there is no call at all. Now, what is the fact in your room, so far as you remember?

Mr. SMITH. So far as my room is concerned, from 25 to 30 copies per year is all the call we have; not over that.

The CHAIRMAN. What do you do with your extra copies?

Mr. SMITH. We keep a file of them, depending altogether on how many I have left at the end of each session; but I keep in the neighborhood of 25 copies.

The CHAIRMAN. And the balance you throw in waste paper?

Mr. SMITH. Yes, sir.

The CHAIRMAN. You pick out these?

Mr. SMITH. Yes; pick out those that are torn and defaced.

The CHAIRMAN. You have no knowledge of these other Departments, have you?

Mr. SMITH. No; I have not, except general information.

The CHAIRMAN. Do you have a similar report—that is, a statement of expenditures from the Department of State, from the Treasury Department, War Department, Navy Department, Post-Office Department, Interior Department, and Department of Justice?

Mr. SMITH. We have statements each year of expenditures from the contingent fund that are printed separately; but for general expenditures we go to the annual reports.

The CHAIRMAN. So that the statements of expenditures that you get from those Departments are not on all fours like the statement that comes from the Agricultural Department, because that includes everything.

Mr. SMITH. Yes; that includes everything. That was done by the act of January 12, 1895, when the administrative portion of the report was cut out from the other portions of the report and the Year-book provided for. Up to that time the two were together.

The CHAIRMAN. Has there been any more call for such statements as have been made public documents from the other Departments than you have had for that from the Department of Agriculture?

Mr. SMITH. Just about the same, I should think. This cutting

(Witnesses: Smith, Post.)

down, Mr. Littlefield, of the number of documents is an experiment with us. You see, this is the first year. When we went over this and these numbers were settled, I tried to be on the safe side.

The CHAIRMAN. That is, your estimates of decreases were conservative?

Mr. SMITH. Yes. I wanted to be on the safe side. It is barely possible that after a year or two's experience some of these might perhaps be cut down a little further.

The CHAIRMAN. And the cut-downs that were made by the Committee on Printing, so far as your room is concerned, were made after consultation with you?

Mr. SMITH. Oh, yes, sir.

The CHAIRMAN. And, as you say, you gave them rather a minimum than a maximum in order to see what the results would be by experience of the reduced number?

Mr. SMITH. Yes, sir.

The CHAIRMAN. So that it will be possible for us later on, perhaps, to make still further reductions?

Mr. SMITH. Yes; still further reductions, and perhaps some increases of others; but I do not think there will be much increase.

The CHAIRMAN. Those numbers published heretofore have been published in accordance with the provisions of the general law?

Mr. SMITH. Yes, sir.

The CHAIRMAN. Are those documents thus published without some order of some officer of either the House or Senate, as a matter of course?

Mr. SMITH. As a matter of course, they are placed there to be transmitted officially.

The CHAIRMAN. And the transmission results as a matter of law, and the publication of the reports, as you understand it, is in consequence of law?

Mr. SMITH. Yes, sir.

The CHAIRMAN. So that if there have been excessive numbers printed it was in consequence of the operation of a general statute?

Mr. SMITH. Yes, sir. There were excessive numbers printed until this went into effect.

STATEMENT OF MR. WILLIAM L. POST, SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. What position do you hold, please?

Mr. POST. Superintendent of documents.

The CHAIRMAN. Now explain to the committee, Mr. Post, please, what disposition is made of documents that appear in the regulations of the Joint Committee on Printing under the title of "House Documents" and under the subject head of "Bound;" first 502 volumes, "Superintendent of Documents, depositaries." Now what is done?

Mr. POST. They are the sheep-bound Congressional documents, sent to designated depositaries, provided by law and designated by each Member and Senator in the States and Territories.

The CHAIRMAN. This particular document we are now inquiring

(Witness: Post.)

about is the "Detailed statement of expenditures in the Agricultural Department," Document No. 502? Those, as I understand you, are all bound in sheep?

Mr. POST. They are all bound in sheep.

The CHAIRMAN. And this statement of expenditures is distributed in accordance with the orders of whom—Congress?

Mr. POST. Congress; it is a special designation that is made, and stands for all Congressional documents.

The CHAIRMAN. Oh, yes; then those are distributed by virtue of the provisions of some existing statute?

Mr. POST. Yes, sir.

The CHAIRMAN. That provides where these various documents shall be sent?

Mr. POST. It provides how they shall be sent, but the Member of Congress is allowed to say where.

The CHAIRMAN. You can not furnish us right now, offhand, I suppose, the law under which that is done, can you?

Mr. POST. No; I can not. That is one of the sections of the Revised Statutes. It provides for furnishing the documents to libraries designated by each Senator, Representative, and Delegate in Congress, and the number would be 482, plus the State and Territorial libraries, 50, which are especially provided for, as well as the libraries of nine Executive Departments, the Naval and Military academies, and American Antiquarian Society at Worcester, Mass., put on by special legislation, a total of 544 libraries; and only 502 books are provided to supply them.

(Sections 501 and 502, Revised Statutes.)

The CHAIRMAN. So those are not documents that go out on call?

Mr. POST. No, sir; they are only the regular numbered Congressional documents bound in sheep.

The CHAIRMAN. And under this statute, practically useless documents and others, it matters not what their value is, all go under the same designation?

Mr. POST. They are all bound up under the same designation.

The CHAIRMAN. Of course the Printing Department knows no distinction?

Mr. POST. None at all.

The CHAIRMAN. The document may not be valuable, or may be of very great value; it does not make any difference what the fact may be in that respect—the same number goes?

Mr. POST. Yes, sir.

The CHAIRMAN. Provided the same designations are made under the statute?

Mr. POST. Yes, sir.

The CHAIRMAN. I find 53 under the subheading of "Smithsonian Institute, foreign exchanges." Are those delivered to the Institute by virtue of the provisions of some general statute?

Mr. POST. Yes, sir; by virtue of the provision of the printing act of January 12, 1895.

Section 54, as amended by joint resolution No. 16, approved March 2, 1901 (Stat. L., vol. 31, p. 1464).

The CHAIRMAN. Now, here are 5 to the Senate library, 5 to the

(Witness: Post.)

House library, 9 to the Library of Congress, and 1 to the State Department. Those are all subject to those same considerations?

Mr. POST. They come under the same law.

The CHAIRMAN. They are distributed in the same way, under the same law?

Mr. POST. Yes, sir.

The CHAIRMAN. So that the Printing Department has no discretion whatever as to the number that they print and bind?

Mr. POST. None whatever; and I will say also that a document of that character, if it were not included among the numbered Congressional documents, would be furnished to designated depository libraries anyway, under provisions of existing statutes, but would not be furnished to the Smithsonian or the Senate or the House libraries, or the Library of Congress, or the State Department. It would go to these libraries because, by provision of the existing statute, the designated depository libraries receive one copy of every Government publication printed, whether it is a Congressional document or a departmental publication, while these other people do not receive anything except what is Congressional in its character.

The CHAIRMAN. What is done with these books that are thus bound if they are not designated for distribution under the statute?

Mr. POST. They are held, according to law, until they are designated.

The CHAIRMAN. Can you give the committee any idea how many of the detailed statements of expenditures in the Agricultural Department are now so held?

Mr. POST. Sixteen.

The CHAIRMAN. Sixteen for what year?

Mr. POST. Sixteen copies for every year. We only have on our list now 484 libraries.

The CHAIRMAN. Then, with the exception of 16 copies, they are all distributed under that statute?

Mr. POST. Yes; they are all distributed.

The CHAIRMAN. So that there is practically no surplus on hand?

Mr. POST. No, sir.

The CHAIRMAN. Do you have any information at the Department as to the value placed upon a public document of that character by these various libraries?

Mr. POST. Not by the libraries; but we have an indication from the sales. Our office is the sales office for the United States Government publications, and we can tell pretty well what publication is popular by the calls we have for it from outsiders.

The CHAIRMAN. What call do you have for this?

Mr. POST. We never have had a call.

The CHAIRMAN. You never have had a call?

Mr. POST. No, sir.

The CHAIRMAN. Have you ever had any call for any of the statements of expenditures from any of the Departments?

Mr. POST. Never to my knowledge. I would not like to be sure about that.

The CHAIRMAN. So that if the fact of calling or not calling was a demonstration of value, these would not have any value?

Mr. POST. None whatever.

(Witness: Post.)

The CHAIRMAN. In a general way, without going into details, what are the documents that you have the principal calls for?

Mr. POST. The bulletins of the Agricultural Department are the best-selling publications, and I think next to that the bulletins and reports of the Geological Survey.

The CHAIRMAN. The bulletins of the Agricultural Department are not printed as House documents?

Mr. POST. No; they are not.

The CHAIRMAN. That is under another provision of the law; and are those of the Geological Survey? Those are not House documents either, are they?

Mr. POST. Yes; they are Congressional documents.

The CHAIRMAN. Do you have any calls for the reports of the Geological Survey?

Mr. POST. Oh, yes; they are sold extensively.

The CHAIRMAN. As House documents?

Mr. POST. Yes, sir.

The CHAIRMAN. This sum of 4,854, for instance, in case of the annual reports of the Agricultural Department (using that item as an illustration), is an aggregate of all of the numbers printed of that document prior to the adoption of the new regulations, is it not, or is it?

Mr. POST. Yes, sir; that is the total number—the grand total.

The CHAIRMAN. And whatever numbers you may have had on hand for sale are numbers that would come out of that aggregate?

Mr. POST. They are represented by that number out there—100 [indicating]. In the case of anything printed as extra copies, when the division is made between the House and the Senate an equal division is made. What is left over comes to the superintendent of documents for distribution and sale. In the case of a 2,000 and 1,000 allotment, he gets 100. In a case like this, of 14,000 and 7,000, he would get 235. It is only the left-over copies after equal distribution is made that come to us.

The CHAIRMAN. In the case of the detailed statement of expenditures of the Agricultural Department there never have been any left over?

Mr. POST. Is that the second one there?

The CHAIRMAN. Yes.

Mr. POST. Nobody took any of them; they did not want them. They would have been entered here if they had been left over. There was no House and Senate distribution or print of them, you see—no extra copies ordered.

The CHAIRMAN. Oh, yes.

Mr. POST. If they had been left over, they would have been entered here.

Mr. SAMUEL. The usual number were printed?

Mr. POST. Only the usual number; yes.

The CHAIRMAN. The usual number printed of all these House documents, then, is only 1,854?

Mr. POST. One thousand eight hundred and fifty-four.

The CHAIRMAN. And if an additional number appears to have been printed in any portion of this schedule it is by virtue of some special legislation?

(Witness: Post.)

Mr. POST. Yes.

The CHAIRMAN. Relating to that particular document?

Mr. POST. Yes, sir.

The CHAIRMAN. And when only 1,854 are printed, they are all accounted for by a distribution under the subhead of "up number and bound?"

Mr. POST. Yes—"up number and reserve."

The CHAIRMAN. "Up-number and reserve"—yes.

Mr. POST. Yes.

The CHAIRMAN. And in such a case they are left for sale by the Department—that is, by your office?

Mr. POST. No; none are left. They are all accounted for in here. Of course, there are over-copies which have gradually come in to us from these various designated depositories, you might say. These people return to us their over-copies for sale when they do not want them. That is where the great trouble lies in our division, because we are constantly being the recipients of donations of old things that we can not get rid of. The total number here of the usual number is too large, in my opinion.

The CHAIRMAN. The total number of House documents is too large?

Mr. POST. One thousand eight hundred and fifty-four is too many—that is, for practical use.

The CHAIRMAN. By how much could that be reduced?

Mr. POST. One thousand three hundred and fifty, I think, would give a liberal allowance to all of the designees, and still not leave such a surplus to be dumped onto the superintendent of documents when he has no use for them.

Mr. SAMUEL. Can not that surplus be condemned?

Mr. POST. We have to hold it there and give it storage room. There is no law that allows us to condemn it.

The CHAIRMAN. How many public documents have you got stored under those circumstances?

Mr. POST. I should think something near 4,000,000; pretty near 3,500 tons of stuff.

The CHAIRMAN. Of what value, taking into account the raw material value?

Mr. POST. Three hundred thousand dollars, I should say, simply as an approximation, would be its book value; as to the value as waste paper I would judge one-tenth that sum a liberal estimate.

The CHAIRMAN. Is that what it cost to print it?

Mr. POST. Oh, my, no.

Mr. FLOOD. That is what the paper is worth?

Mr. POST. That is what we could get out of it, I should think, if we should sell it for waste.

The CHAIRMAN. How long has it been accumulating?

Mr. POST. Ever since they have been printing. We have been gathering in, all the while, the accumulation from the various document rooms at the Capitol here. They are gathered from the document rooms and the folding rooms of the House and Senate, and from the storerooms of the various Executive Departments.

The CHAIRMAN. They are those that have been undistributed?

Mr. POST. Undistributed.

(Witness: Post.)

The CHAIRMAN. Under the provisions of the law, and for which there appears to be no call from anybody?

Mr. POST. None whatever.

The CHAIRMAN. And the paper alone would be of the value of something like \$30,000.

Mr. POST. I should judge so. Of course, that is a guess.

The CHAIRMAN. Yes; that is, roughly speaking. And about how much has it, in your judgment, cost the Government to print and publish that material, taking into account the cost of composition and printing, and the paper, roughly speaking?

Mr. POST. I do not believe I could give a very good idea.

The CHAIRMAN. Could you approximate it within \$100,000—just roughly?

Mr. POST. Well, I should say that surely it was three or four times the figure given for the book value.

The CHAIRMAN. Then this accumulation of material that seems to be of no value except a raw material value, a paper value, has cost the Government in the aggregate approximately, you would say, something like \$1,250,000?

Mr. POST. I should think so.

The CHAIRMAN. And it is being held and stored there now by the Printing Department, under the provision of some law?

Mr. POST. Yes, sir.

The CHAIRMAN. That is, the Printing Department has no power or authority under existing legislation to dispose of that accumulation?

Mr. POST. Only by sale or distribution.

The CHAIRMAN. Why do they not sell it?

Mr. POST. Nobody will buy it.

The CHAIRMAN. Could you not sell it for waste paper?

Mr. POST. Well, that is not the intent of the law. We can only sell it as documents because the law provides that the superintendent of documents shall report annually the number of each and every document sold, and the price of it, making an itemized report, so that he could not sell it as waste paper because, then, he could not do that.

The CHAIRMAN. No. You have no authority under the present statute to dispose of this vast accumulation of material?

Mr. POST. None whatever.

The CHAIRMAN. And a great deal of that material must consist of duplicates—that is, reports of the same character from year to year?

Mr. POST. And there are hundreds of copies of the same report.

The CHAIRMAN. Yes.

Mr. POST. For instance, we have thousands of copies of Congressional directories that are not worth anything to anyone except for their historical value.

The CHAIRMAN. And under the provisions of the law you can not sell them for waste paper?

Mr. POST. No, sir.

The CHAIRMAN. But you have to store them?

Mr. POST. We have to go to the expense of handling and storing them; yes.

The CHAIRMAN. Where do you store this accumulation of more or less valuable material?

(Witness: Post.)

Mr. Post. Nearly the entire old building of the Government Printing Office is taken up now with the storage of this matter.

The CHAIRMAN. What is the annual value of that storage capacity? Could you tell somewhere near what it is?

Mr. Post. No; I could not. I do not know.

The CHAIRMAN. In a short time, I suppose, the capacity of that building will be exceeded?

Mr. Post. It is now so that we are refusing to receive from the designated depositories any return of documents, and we are constantly calling upon the Executive Departments to hold their surplus, as we have not any place in which to put it.

The CHAIRMAN. What are they doing with it now; simply accumulating it in other storage places?

Mr. Post. Yes. The provisions of this resolution of the Joint Committee on Printing will reduce that surplus. We will never have again the surplus that we have had heretofore.

The CHAIRMAN. Yes; but have the committee made any provision for disposing of the existing surplus?

Mr. Post. No; I understand they are going to take some steps at this Congress. It will have to be in the form of legislation, though.

The CHAIRMAN. Out of this immense aggregate of 4,000,000 copies of documents how many calls would you say, approximately speaking, the Printing Office has for the documents comprising that accumulation?

Mr. Post. We are selling out of that accumulation at the rate of, I should say, an average of \$145 a day; but the greater part of that would be current publications of the Department of Agriculture.

The CHAIRMAN. Oh, current publications of the Department of Agriculture?

Mr. Post. That is, the majority of those sales.

The CHAIRMAN. What proportion of that \$145 a day would be current publications?

Mr. Post. Oh, 90 per cent would be current publications.

The CHAIRMAN. How long do they continue to call for a document? For instance, would a document four years old be called for, or would a document ten years old be called for?

Mr. Post. Oh, yes; forty years old; they call for them away back. We have to keep on hand (in stock, as we call it) 10 copies of nearly everything, because we do not know what is going to be called for.

The CHAIRMAN. Then do you have 10 copies of everything in addition to this 4,000,000 accumulation?

Mr. Post. No; that is included in that.

The CHAIRMAN. That is a part of it?

Mr. Post. What we call stock at the office would aggregate, I should judge, 700,000 books.

The CHAIRMAN. That is, that would be approximately 10 volumes a year of each document, roughly speaking?

Mr. Post. Yes, sir.

The CHAIRMAN. And the balance of the 3,300,000 copies are practically not called for at all, and not estimated by you in the stock?

Mr. Post. We call it dead stock.

The CHAIRMAN. You call it dead stock because it has no market value?

(Witness: Post.)

Mr. POST. None whatever.

The CHAIRMAN. No calls are being made for it?

Mr. POST. No, sir.

The CHAIRMAN. And the Government is simply keeping it on hand and storing it?

Mr. POST. That is true.

Mr. SAMUEL. What do you mean by the term "current publications?" Do you mean those published each year?

Mr. POST. When I say "current" it would mean this year's publications.

The CHAIRMAN. Up-to-date publications?

Mr. POST. You see, the Department of Agriculture issues bulletins every day.

The CHAIRMAN. For instance, would you call a 1906 publication a current publication, or one issued in 1905?

Mr. POST. Yes, sir.

The CHAIRMAN. Anything within two or three years of the present time, I suppose?

Mr. POST. Yes, sir.

The CHAIRMAN. Would it be possible for your department to furnish Congress a schedule that would result in the publication of something approximately near what the real demand for the documents would be and prevent this tremendous accumulation, or is that something that the Printing Committee have on hand now and are investigating?

Mr. POST. I am attempting now to make up a list of the publications on hand, to show, as an object lesson, the overprinting that has already been done.

The CHAIRMAN. Yes.

Mr. POST. That is the reason why we have made every effort to gather from all these depository sources their surplus, so as to be able to have it there, and show by this object lesson what an enormous amount of overprinting has already been done.

The CHAIRMAN. Is it practicable to differentiate between practically worthless publications for general use and valuable publications for general use?

Mr. POST. Yes; I think so.

The CHAIRMAN. Are you making an effort to do that?

Mr. POST. We are, through the medium of our depository libraries, which represent, as a rule, the very best library in the Congressional district of the Representative, and they would know, of course, by the calls that they have for the different publications which were valuable and which were not. We are now compiling statistics to that effect, to find out what publications of the Government are used and what are never used. But such statistics will not be complete in this way: That the facilities for digging out of the sheep-bound reserve, for instance, the valuable publications and separating them from those that are not valuable are so meager that half the libraries, and certainly very few of the general public, know what is contained in that sheep-bound set.

The CHAIRMAN. Yes; I suppose that is true. But take it in the case, for instance, of the document we are particularly interested in

(Witness: Post.)

here—the report of the expenditures of the Department of Agriculture.

Mr. Post. Yes, sir.

The CHAIRMAN. Which must be of exceedingly trifling value to the general public.

Mr. Post. I should think it was of very little value.

The CHAIRMAN. Extremely.

Mr. Post. But it would be bound up, Mr. Littlefield, with perhaps a great many publications that were of great value.

The CHAIRMAN. You mean put into the same volume?

Mr. Post. Put into the same volume, because its numerical position would bring it in a certain volume.

The CHAIRMAN. But why should not a method be adopted that would simply result in a distribution of the documents these people desire and want and then publish the practically valueless documents by themselves? That is, why not bind up documents of the same character in the same volume, instead of combining the valuable documents and the valueless documents in the same volume?

Mr. Post. We have attempted to do that by getting legislation authorizing us to have the documents bound in some high-grade cloth, instead of in sheep, and the saving to the Government would be two-thirds of what is now the expense of distributing these books.

The CHAIRMAN. That is, it costs about two-thirds less to bind in cloth than it does to bind in sheep?

Mr. Post. Just about; and it provides a very much better binding in the end than the sheep binding.

The CHAIRMAN. That is, it does not deteriorate so rapidly?

Mr. Post. No; it is more acceptable to the libraries; they would rather have it; but it always meets with opposition. I do not know that I should state this.

The CHAIRMAN. State whatever the facts are, and give your own opinion about it, too.

Mr. Post. I have no objection to giving my own opinion, but I do not want to encroach upon the Public Printer's business. The fact is that the bookbinders' unions are, of course, violently opposed to having sheep-bound documents dispensed with, and that is the only reason.

The CHAIRMAN. And for what reason are they opposed to it?

Mr. Post. Because it takes away from their work.

The CHAIRMAN. It means so much less employment?

Mr. Post. Yes, sir. That is the only reason I know of that we have not had legislation heretofore to do away with the binding of this reserve in sheep and substituting cloth.

The CHAIRMAN. In the case of that reserve that could be bound in cloth, and by such binding have fully as much utility or value, or more, as if it were bound in sheep, about how much, in your judgment, would it save the Government every year if that change were made?

Mr. Post. One-third of the expense of that reserve.

The CHAIRMAN. About how much would that be in dollars and cents, roughly speaking?

Mr. Post. There were 329 volumes of documents in a set of the Fifty-seventh Congress, costing \$563.65 for the set. Under the law

(Witnesses: Post, Zappone, Moore.)

502 sets were bound in sheep, making a total expenditure for depository libraries of \$282,952.30. In a good grade of cloth these same books could have been supplied at a saving of two-thirds of the expense, or \$188,634.86. I believe this is a conservative estimate of the saving. Of course these figures do not include the cost of composition, as the estimates are figured in printing from stereotype plates.

The CHAIRMAN. About what would be the extra cost per copy of such a document as House Document No. 448 of the Fifty-ninth Congress, first session? That would include, of course, the presswork and the material, mainly, because, of course, the same composition does for the whole work.

Mr. POST. Yes. I am guessing now, of course.

The CHAIRMAN. Certainly.

Mr. POST. I should say 20 cents a copy. Perhaps that is too high. I may be thinking of the selling price rather than the cost price. I do not handle anything but the selling price—not the cost price.

The CHAIRMAN. Suppose you look that up for us and advise us.

Mr. POST. Yes; we can give you that exactly.

The CHAIRMAN. And put it on the basis of the page.

Mr. POST. I find 32½ cents a fair estimate for each copy on a basis of 1,000 copies.

Mr. SAMUEL. And then just give the committee the difference in cost between the volume known as the "Expenditures of the Department of Agriculture for the Fiscal Year ending June 30, 1906," and House Document No. 448, Fifty-ninth Congress, first session.

Mr. ZAPPONE. The estimated price of the volume that you are now discussing was \$2,500—rather high, to my mind. I think the actual cost will be very much less.

The CHAIRMAN. Well, Mr. Post will give us that.

Mr. ZAPPONE. And the cost of the other is just about twice that sum, or \$5,000.

Mr. FLOOD. That was in accordance with the figures you had—\$4,700?

The CHAIRMAN. Yes; somewhere in that neighborhood; yes.

Mr. MOORE. That is the cost of the printing, not of the compiling, is it?

Mr. POST. Not the compiling. The estimated cost of the "Expenditures of the Department of Agriculture for 1906," on the basis of 500 copies, would be about \$2,260; that of House Document 448, Fifty-ninth Congress, first session, on the same basis would be about twice that figure.

The CHAIRMAN. Has the fact that there have been on hand here for a number of years about 3,300,000 of public documents, being stored by the Government at its expense, been called to the attention of any of the committees, or any of the Departments?

Mr. POST. Yes, sir.

The CHAIRMAN. When, and to whose attention?

Mr. POST. The Committee on Printing have known of it for several years. Nothing could be done to dispose of it until it could be segregated and classified in some way, and that is now being done.

The CHAIRMAN. When did they begin to segregate and classify?

Mr. POST. Just about a year ago.

(Witness: Post.)

The CHAIRMAN. And how long before that had the attention of any of the committees been called to that condition of congestion—if I may put it that way—of useless material?

Mr. POST. I could not say, as I have been in office only since February 8th of last year.

The CHAIRMAN. Oh, I see.

Mr. POST. And it was at that time that the committee's attention was called to it. This, of course, represents only the accumulation of documents at the superintendent of documents' office. It has nothing to do with the vast accumulation in the folding rooms.

The CHAIRMAN. Will you furnish us with an estimate of what it is costing the Government for rental to store these useless 3,300,000 copies that are under the charge of the printing department?

Mr. POST. Yes, sir. On the basis of \$5,000 paid for rental of the L street warehouse, I should think the space we occupy would be worth at least \$10,000 a year for storage purposes.

The CHAIRMAN. As I understand the fact, the Government is now losing the use of practically \$30,000, the material value for old paper of this accumulation, and in addition to that is losing the rental of the property where it is stored? That represents the actual loss to the Government for continuing this accumulation?

Mr. POST. Yes, sir.

Mr. SAMUEL. That room could be utilized for other purposes, could it not?

Mr. POST. Yes; it is in the old Government Printing Office building.

The CHAIRMAN. Well, property is valuable here, and it could be rented for all kinds of things.

Mr. FLOOD. I understood Mr. Grayson to say that the surplus left over at the House document room and the Senate document room was sold for waste paper, and I understood you to say that it was sent back to the Printing Office.

Mr. POST. Well, yes; that is true. It is the folding room surplus that we get.

The CHAIRMAN. Do you have any idea how much surplus there is now in the folding room, which will be in addition to the sum you have given us as now being stored by the Printing Office?

Mr. POST. I think the report of the Congressional Printing Investigation Commission gives the figures. I could not give them offhand. They made an estimate in tons. They could not count the books, but they estimated it in tons. At the time I took some men and went over there and measured for them the piles of books and gave an estimate of the number of tons of stuff on hand, and I think that is printed in their report.

Mr. SAMUEL. Do you get the accumulations from the folding room?

Mr. POST. Yes, sir.

Mr. SAMUEL. Do you get the Yearbooks?

Mr. POST. That is something that we never get. We never get anything that is of any value. The accumulation of horse books and Yearbooks in the folding rooms could be sold to great advantage if we could get hold of them.

The CHAIRMAN. The bulletins of the Department of Agriculture

(Witness: Post.)

are not House documents, and therefore do not get into the hands of the folding room?

Mr. Post. No, sir.

The CHAIRMAN. And that is how you happen to have a good many of those on hand, and for those you have quite an extensive sale?

Mr. Post. Yes, sir.

The CHAIRMAN. And as a rule you do not get anything from the folding rooms, as surplus from them, that is of much market value or for which you have any call of any consequence?

Mr. Post. No, sir.

The CHAIRMAN. Everything that appears to be practicable and useful they practically distribute to the limit of the allotment made to them?

Mr. Post. Yes, sir.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
January 17, 1907.

The committee met at 10 o'clock a. m.

Present: Representatives Littlefield (chairman) and Samuel.

Present also: Representative Lovering, of Massachusetts; A. Zapone, esq., chief of the division of accounts and disbursements, Agricultural Department; Victor H. Olmsted, esq., Chief of the Bureau of Statistics, Agricultural Department; and William L. Post, esq., superintendent of documents, Government Printing Office.

FURTHER STATEMENT OF WILLIAM L. POST, ESQ., SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE.

The CHAIRMAN. Mr. Post, you stated to us the other day, as I remember, that there was an accumulation of something like 4,000,000 volumes of public documents in the Printing Department. I have here the report of your office for 1906, which states, on page 1, "Publications on hand July 1, 1905, 1,051,107." Without understanding the situation, that would seem to be inconsistent with the statement which you made. Will you be kind enough to explain what the fact is?

Mr. Post. There were on hand at the time, July 1, 1905, a great many documents which were not counted in as stock—"dead stock," we call it.

The CHAIRMAN. Did your aggregate of 4,000,000 include this 1,051,107, or are those additional thereto?

Mr. Post. It included that; and the 700,000 which I spoke of as salable stock was also included.

The CHAIRMAN. So this report proceeds on the basis that you have at least 3,000,000 volumes that are not taken account of in any way in making your report, but are simply treated as so much dead lumber?

Mr. Post. Yes, sir.

The CHAIRMAN. And of this 1,051,107, approximately, you estimate that only 700,000 of that is what you would call real live matter?

Mr. Post. Yes, sir.

(Witness: Post.)

The CHAIRMAN. And in making an estimate of that as real live matter, are you conservative?

Mr. POST. I think so.

The CHAIRMAN. So that the real fact is, although it does not appear by this report, that there is an aggregate of about 3,300,000 volumes on hand of substantially dead matter, in your judgment?

Mr. POST. Yes, sir.

The CHAIRMAN. Without this explanation, of course, the report would appear to be a little inconsistent.

Mr. POST. The great accumulations are contained in mail sacks, and stored in various rooms, in such a condition that you could only guess at the quantity. It would be impossible to count it.

The CHAIRMAN. Yes; you have to estimate it.

Mr. POST. And perhaps when the stock is all counted it will fall short of 4,000,000 books. I am only guessing at that.

The CHAIRMAN. Precisely. Your estimate of the approximate value of the 4,000,000 volumes for waste paper was \$30,000?

Mr. POST. Yes, sir.

The CHAIRMAN. I notice that the accumulation increased during the year something like 250,000 volumes. That is, you had on hand on July 1, 1905, 1,051,107, and you had on hand June 30, 1906, 1,301,690, which is an increase of about 250,000 volumes. Has this accumulation of matter been increasing at that rate, or is this increase during the year 1906 unusual and abnormal?

Mr. POST. There has been a greater increase during this past year. Our statistics to date (statistics similar to those in that annual report, as made by the last monthly report to the Public Printer) show something over 2,050,000 books on hand and counted; but these were received not only from the Departments and depositories, but represent some of this dead stock which we had not counted before.

The CHAIRMAN. You say that the accumulations have increased during the year 1906?

Mr. POST. Greatly.

The CHAIRMAN. What is the occasion of that increase?

Mr. POST. The people in charge of the Senate folding room, for instance, have only recently awakened to the fact that they could get rid of their surplus, and they have been turning it over to the superintendent of documents.

The CHAIRMAN. But they are simply clearing that out so as to get more storeroom?

Mr. POST. Clearing it out; yes, sir.

The CHAIRMAN. They want storeroom for lumber, and they are turning the documents over to you?

Mr. POST. Yes; they are giving us what they do not want.

The CHAIRMAN. Yes; what they have not been able to use, and what they have not been able to get out. Is it not a fact that both the printing department and the other Departments have been making very vigorous efforts within the last year or two to get these documents out and into distribution?

Mr. POST. Yes, sir.

The CHAIRMAN. And they have found it impossible to do so?

Mr. POST. Yes, sir. The fact is, the libraries are desirous of re-

(Witness: Post.)

turning a great quantity of public documents rather than receiving them.

The CHAIRMAN. You mean these libraries throughout the country?

Mr. POST. I mean all of the libraries.

The CHAIRMAN. Could you give us a list of the publications these libraries want to return and do not want to receive, made up, so far as you can, from information your department has received?

Mr. POST. Yes, sir; I think we could. The majority of stock which they wish to return consists of Congressional documents, small Congressional documents which they accumulate through the kindness of Congressmen and their Senators.

The CHAIRMAN. Those that are of no general value?

Mr. POST. Those are the ones they want returned.

The CHAIRMAN. And those are mainly bound in law sheep?

Mr. POST. They are unbound, as a usual thing.

The CHAIRMAN. Will you furnish for us a list of the documents that the libraries are endeavoring to return and trying to prevent the receipt of?

Mr. POST. Yes, sir.

The CHAIRMAN. It has appeared before the committee that the folding room of the House had an accumulation of something like a million and a quarter volumes of Government publications. Have you any idea what the accumulation is on the Senate side?

Mr. POST. No, sir.

The CHAIRMAN. Except that they have been pushing the lumber off onto you for the last year, at what rate? How many sacks full a day, at a time?

Mr. POST. Oh, I could not say, but a great many; as many as we could take.

The CHAIRMAN. As many sacks full as you could take?

Mr. POST. Yes, sir.

The CHAIRMAN. How long has that process of transportation been going on between the folding room of the Senate and the superintendent of documents' office? About a year?

Mr. POST. No; I should think about three or four months.

The CHAIRMAN. Has it been going right along pretty continuously during that time?

Mr. POST. As continuously as the weather and our facilities for receiving it would permit.

The CHAIRMAN. That is, just as fast as the weather and your facilities allowed, they have been carting this lumber from the folding room of the Senate over into the Government Printing Office?

Mr. POST. Yes, sir; cords of it; all wrapped for mailing.

The CHAIRMAN. Yes; and about how many volumes have they thus succeeded in crowding off onto your office?

Mr. POST. Oh, I could not tell you.

The CHAIRMAN. Well, you have about 2,000,000 on hand now, you say?

Mr. POST. Yes, sir.

The CHAIRMAN. That is 700,000 more than you had on hand June 30, 1906; so that they have probably transferred—

Mr. POST. Well, I can give you the exact figures on that.

(Witness: Post.)

The CHAIRMAN. Just give us the exact figures, then; just show us how much lumber they have transferred to your department.

Mr. POST. In three months—September, October, and November—they turned over to us 127,428 books.

The CHAIRMAN. Now, this matter of the \$10,000 a year rental: Was that based upon the rental actually paid, or the estimated value of the property for rental?

Mr. POST. It was based upon the rental actually paid for the L street warehouse.

The CHAIRMAN. Is that \$10,000?

Mr. POST. No; that is \$5,000; a little over \$5,000; \$5,500, I think. But taking the cubic space of that warehouse and then figuring on the same basis the cubic space that we occupy, we arrived at the \$10,000 basis.

The CHAIRMAN. How long has the Government been practically paying \$10,000 a year rental for the purpose of storing this accumulation—that is, about how long?

Mr. POST. It began back in 1895, when the office of superintendent of documents was created, and the Interior Department began to take advantage of the law by turning over its large accumulation. But not until very recently—within the last three years, I should say—have we had any enormous accumulation on hand.

The CHAIRMAN. For about three years' time, then, the Government has been paying practically \$10,000 a year simply to store these accumulations?

Mr. POST. Yes, sir. One instance that might be cited was that of the Census Office having on hand and paying for the storage in the Union Building of old census volumes, and finally they insisted, under the law, on turning them over to us. We finally took them, although we had no convenient place for them, and they have been moved twice since in order to make room for good stock; and I believe that the chief clerk of the Department said they saved about \$3,000 a year by our taking them off their hands.

The CHAIRMAN. It saved about \$3,000 that they were paying out for rental?

Mr. POST. Yes, sir. The accumulation is absolutely worthless. It is composed of those volumes of the Tenth and Eleventh censuses, which would not be called for, such as population—an enormous overprint of those certain volumes. The volumes on forestry, and everything of interest, had been culled out and distributed.

The CHAIRMAN. Those are the Tenth and Eleventh censuses?

Mr. POST. Yes, sir.

The CHAIRMAN. And they are for what years?

Mr. POST. The Tenth, I think, was 1880, and the Eleventh was 1890.

The CHAIRMAN. Then since 1890 the result is that the Government has been paying \$3,000 a year for the storage of that useless material?

Mr. POST. I should judge so. We endeavored to place it in libraries, and found no call for it whatever.

The CHAIRMAN. You could not get it out—you could not force it into distribution?

Mr. POST. We could not dispose of it at all.

(Witness: Post.)

Mr. SAMUEL. And you could not sell it?

Mr. POST. No, sir; we could not even give it away.

The CHAIRMAN. You have occasion to know more or less about the accumulations in the various Departments of the Government, I suppose?

Mr. POST. Yes, sir.

The CHAIRMAN. What other Departments of the Government have accumulations of dead material in the line of printed matter?

Mr. POST. None. They have taken advantage pretty fully of the law since we have been able to take documents and have turned over all their accumulation to us. I think, perhaps, the War Department has a small accumulation; but that is because we have not been able to receive it; that is all.

The CHAIRMAN. So that under the law you are the clearing house for this waste?

Mr. POST. Yes, sir.

Mr. SAMUEL. Have you any knowledge of the character of that which the Senate folding room sends over to you?

Mr. POST. Oh, yes, sir. It is composed of the extra prints of various Congressional documents, such as eulogies, and things of that kind that are not very popular. We get quantities of it—cords of it, you might say.

The CHAIRMAN. Of what?

Mr. POST. Of these Congressional documents, such as eulogies, etc., Special Reports on Diseases of Cattle. I know that there is a great pile of that there that is now obsolete because of more recent publications on the same subject.

The CHAIRMAN. Subsequent editions, do you mean?

Mr. POST. Yes, sir. Therefore it makes it very difficult to get rid of it by sale, because the office would not want to be in the position of advertising for sale a publication which had been superseded by something better.

Mr. SAMUEL. And you have no authority to sell it as old paper?

Mr. POST. No, sir. That is the authority we would like to get.

The CHAIRMAN. This resolution which you submitted to me and which will appear in our minutes gives that authority?

Mr. POST. Yes, sir; not only the authority to dispose of this accumulation, but in the future to do away with any such accumulation; to prevent it.

Mr. SAMUEL. That would save the storage rent?

Mr. POST. The storage rent and the time required for handling. We are, I think, better fitted to know what is valuable and what is not than any other people, because we are continually in close connection with all the libraries in the country.

The CHAIRMAN. You speak of time for handling. Is that an appreciable factor in the expense of keeping this accumulation on hand?

Mr. POST. Oh, yes; a very great factor.

The CHAIRMAN. What does it cost your department? In what way is expense incurred in handling in the manner of which you speak?

Mr. POST. I have been employing for the last six months 14 extra laborers to get this stock in order, to get it counted, in order to know

(Witness: Post.)

what we have. There is an expense right there that is almost useless. Perhaps the amount of good material that we will cull from this vast accumulation will more than compensate for the labor employed; but unless something is done to relieve us of the surplus it will need rehandling all the time in order to move it from one place to another, as storage facilities are necessarily increased.

The CHAIRMAN. Could you make an approximate estimate of what it has already cost the Government to handle this material over there within the last three or four years?

Mr. POST. I could not, offhand.

The CHAIRMAN. Will you please make an estimate and submit it?

Mr. POST. I will. \$10,000 a year storage; 6 laborers, at \$626 each, or \$3,756 for labor in handling; or \$13,756 a year for three years.

Mr. SAMUEL. Mr. Chairman, why not have him make an estimate of the entire cost of the accumulation, approximately?

The CHAIRMAN. Do you mean the original cost?

Mr. SAMUEL. No; everything outside of the valuable material.

The CHAIRMAN. We have that now. He has given us that.

Mr. SAMUEL. There may be some other little costs connected with it besides those two that have been mentioned, handling and storing.

The CHAIRMAN. Yes. I will ask you to submit, then, with the estimate, the entire cost, with the larger items separated, of holding this great accumulation of material.

Mr. SAMUEL. So as to give us an idea of what could be saved if you did not have that accumulation to store.

The CHAIRMAN. Yes; that is, how much better off the Government would have been.

Mr. SAMUEL. Yes.

Mr. POST. When I appeared before the committee the other day, the figures which I gave as representing stock value I may not have made plain in my statement. I meant to bring out the fact that the stock value—that is, the value for salable publications—was a certain amount and the value as waste paper was another amount.

The CHAIRMAN. Yes.

Mr. POST. Of course the majority of this stuff is only valuable to us now as waste paper, and figuring it as valuable as books is a poor basis.

The CHAIRMAN. What did it cost the Government to print this material, approximately? You estimated the other day about a million and a quarter of dollars.

Mr. POST. I think that is about correct.

The CHAIRMAN. That includes material and composition and press-work and binding?

Mr. POST. Yes, sir.

The CHAIRMAN. About a million and a quarter.

Mr. POST. I do not believe there is anything that could be done in the line of aid to libraries that would be more greatly appreciated than to relieve them of the reception of a lot of this material that is of no use to them.

Mr. SAMUEL. The reception, you mean to say, that is being forced?

The CHAIRMAN. We will ask you to give us, then, a full list of that material, and what it is now costing the Government to publish it. That covers the whole thing.

(Witness: Post.)

Mr. Post. Yes, sir.

The CHAIRMAN. And that you can submit; your testimony will be submitted to you, and you can have that prepared and put right into it.

Mr. Post. Yes, sir.

The CHAIRMAN. I think that covers all there is to ask you.

OFFICE OF SUPERINTENDENT OF DOCUMENTS,
Washington, February 9, 1907.

DEAR SIR: I have the honor to transmit herewith a list of annual and serial publications regularly furnished to designated depository libraries.^a

It should be borne in mind that this list does not include any special publications of the various publishing offices, for, with the exception of the Library of Congress, all such special publications printed for distribution are regularly forwarded.

In the case of the Library of Congress, the Librarian has specially requested that only those publications herein listed, or such as he may specially direct, are to be sent out under the law.

In relation to the question asked at the hearing as to the class of books returned from depository libraries, the information for which I stated I would furnish, I find upon investigation that it is impossible to do so, and I would therefore request that the question be stricken from the records. I trust that the delay in compiling this list has not embarrassed the committee, and will be glad to furnish any other information which it may desire.

I inclose also a statement of the approximate actual cost of the publications forwarded to a designated depository library during a Congress. The statistics of this office show only the cost, exclusive of composition, so that the figures, including composition, are purely guess work.

Very truly, yours,

WILLIAM L. POST,
Superintendent of Documents.

HON. CHAS. E. LITTLEFIELD,
House of Representatives.

Inclosures.

Statement of actual cost (approximately) of books forwarded to a designated depository library during a Congress.

Miscellaneous publications of the various Executive Departments and other publishing offices-----	\$1, 004. 15
Congressional bound reserve-----	2, 184. 70
<hr/>	
Total, including composition-----	3, 188. 85
Total amount expended in furnishing books for 500 State and Territorial and designated depository libraries, including cost of composition-----	1, 594, 425. 00
Total amount expended in furnishing books for 500 State and Territorial and designated depository libraries, exclusive of composition-----	354, 675. 00

^a Submitted but not printed on account of its great length.

Witness: Post.

OFFICE OF SUPERINTENDENT OF DOCUMENTS,
Washington, January 14, 1907.

DEAR SIR: In compliance with your telephone request of several days ago, I am sending you herewith copies of the various provisions of the printing law of January 12, 1895, with amendments thereto, governing the supply of books to the superintendent of documents.

By reference to the schedule you will notice that I have attempted to provide you with the legislation covering the several divisions, but in this connection some explanation is necessary.

The paragraphs quoted are the warrant for supplying the larger amounts on the schedule, while the smaller amounts are provided in various other sections and amendments of the printing law not herein listed, but which can be easily found by reference to that law.

The large majority of the accumulation of public documents now in my charge have been received under the provisions of section 54, "Reserve, unbound," and section 67, "Surplus," and section 68, "Remainders." Under the provisions of public resolution No. 14, approved March 30, 1906, which gives the authority for the preparation of the schedule, the objectionable features of section 68 are done away with and we only get our "remainders" on such publications as we desire for distribution or sale.

The resolution referred to reads as follows:

"Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the Joint Committee on Printing is hereby authorized and directed to establish rules and regulations from time to time, which shall be observed by the Public Printer, whereby public documents and reports printed for Congress, or either House thereof, may be printed in two or more editions instead of one to meet the public requirements: Provided, That in no case shall the aggregate of said editions exceed the number of copies now authorized or which may hereafter be authorized: And provided further, That the number of copies of any public document or report now authorized to be printed or which may hereafter be authorized to be printed for any of the Executive Departments or bureaus or branches thereof or independent offices of the Government may be supplied in two or more editions instead of one, upon a requisition on the Public Printer by the official head of such Department or independent office, but in no case shall the aggregate of said editions exceed the number of copies now authorized or which may hereafter be authorized: Provided further, That nothing herein shall operate to obstruct the printing of the full number of any document or report or the allotment of the full quota to Senators and Representatives, as now authorized, or which may hereafter be authorized when a legitimate demand for the full complement is known to exist.

"Approved March 30, 1906."

In further compliance with your request, I transmit also herewith a draft of a resolution recently prepared and forwarded to the Joint Committee on Printing, providing for the condemnation and sale of the accumulation of worthless material which is, under the law, stored in the old Government Printing Office, and occupying valuable space.

If some such resolution could be adopted, it would greatly simplify the problem in this office, provided that the resolution was broad enough to give authority for the condemnation of "dead stock," which, under the law, might be received from time to time from the various public bureaus.

After many years of association with the printing and distribution of public documents and the careful study of the existing laws on the subject, I am thoroughly convinced that nothing short of a carefully compiled substitute for the present printing law will prevent the useless waste and provide a means for the better distribution and sale of Government publications.

I inclose herewith a copy of my last annual report, which I feel will be of interest to you, and would assure you that any further information which I can supply will be cheerfully presented.

Very truly, yours,

WILLIAM L. POST,
Superintendent of Documents.

HON. CHARLES E. LITTLEFIELD,
House of Representatives.

Witness: Post.

Resolved by the Senate and House of Representatives in Congress assembled, That the superintendent of documents shall report to the Public Printer from time to time for condemnation any accumulation of public documents for which there is no demand, or which he is unable to distribute to libraries under the law, and the Public Printer is hereby authorized and directed to appoint a board, composed of the superintendent of documents and two other experts who shall submit written recommendations upon which the Public Printer shall order the condemnation of the publications and their sale as waste paper under contract.

Provisions of the printing law of January 12, 1895, with amendments thereto, governing the supply of books to the superintendent of documents.

SEC. 54. Whenever any document or report shall be ordered printed by Congress, such order to print shall signify the "usual number" of copies for binding and distribution among those entitled to receive them. No greater number shall be printed unless ordered by either House, or as hereinafter provided. When a specified number of a document or report is ordered printed, the usual number shall also be printed, unless already ordered. The usual number of documents and reports shall be one thousand six hundred and eighty-two copies, which shall be distributed as follows:

Of the House documents and reports, unbound.—To the Senate document room, one hundred and fifty copies; to the office of the Secretary of the Senate, ten copies; to the House document room, four hundred and twenty copies; to the Clerk's office of the House, twenty copies.

Of the Senate documents and reports, unbound.—To the Senate document room, two hundred and twenty copies; office of the Secretary of the Senate, ten copies; to the House document room, three hundred and sixty copies; to the Clerk's office of the House, ten copies.

That of the number printed the Public Printer shall bind one thousand and eighty-two copies, which shall be distributed as follows:

Of the House documents and reports, bound.—To the Senate library, fifteen copies; to the Library of Congress, two copies, and fifty additional copies for foreign exchanges; to the House library, fifteen copies; to the superintendent of documents, five hundred copies, for distribution to the State and Territorial libraries and designated depositories.

Of the Senate documents and reports, bound.—To the Senate library, fifteen copies; to the Library of Congress, two copies, and fifty copies additional for foreign exchanges; to the House library, fifteen copies; to the superintendent of documents, five hundred copies, for distribution to the State and Territorial libraries and designated depositories. These documents shall be bound in full sheep, and in binding documents the Public Printer shall give precedence to those that are to be distributed to libraries and to designated depositories: *Provided,* That any State or Territorial library or designated depository entitled to documents that may prefer to have its documents in unbound form may do so by notifying the superintendent of documents to that effect prior to the convening of each Congress.

The remainder of said documents and reports shall be reserved by the Public Printer in unstitched form, and shall be held subject to be bound in the number provided by law upon orders from the Vice-President, Senators, Representatives, Delegates, Secretary of the Senate, and Clerk of the House, in such binding as they shall select, except full morocco or calf; and when not called for and delivered within two years after printing shall be delivered in unbound form to the superintendent of documents for distribution. All of the "usual number" shall be printed at one time.

(No. 36.)

JOINT RESOLUTION Providing for the binding and distribution of public documents held in the custody of the superintendent of documents, unbound, upon orders of Senators, Representatives, Delegates, and officers of Congress, when such documents are not called for within two years after printing.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That hereafter the documents reserved for binding upon orders of Senators, Representatives, Delegates, and officers of Congress, as provided in paragraph six, section fifty-four, of an act approved

Witness: Post.

January twelfth, eighteen hundred and ninety-five, providing for the public printing and binding and the distribution of public documents, if not called for and delivered within two years after printing shall be bound in first grades of cloth and delivered to the superintendent of documents for distribution to libraries; and the Public Printer is hereby authorized and directed to bind in cloth all such documents heretofore delivered to the superintendent of documents for like distribution.

Approved, June 30, 1902.

AN ACT to amend the act relating to the printing and distribution of public documents, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act entitled "An act providing for the public printing and binding and distribution of public documents," approved January twelfth, eighteen hundred and ninety-five, be amended as follows:

That section fifty-four of said act is hereby amended by adding at the end thereof as follows:

That hereafter the usual number of reports on private bills, concurrent or simple resolutions, shall not be printed. In lieu thereof there shall be printed of each Senate report on a private bill, simple or concurrent resolution, three hundred and forty-five copies, which shall be distributed as follows: To the Senate document room, two hundred and twenty copies; to the Secretary of the Senate, fifteen copies; to the House document room, one hundred copies; to the superintendent of documents, ten copies; and of each House report on a private bill, simple or concurrent resolution, two hundred and sixty copies, which shall be distributed as follows: To the Senate document room, one hundred and thirty-five copies; to the Secretary of the Senate, fifteen copies; to the House document room, one hundred copies; to the superintendent of documents, ten copies: *Provided*, That nothing contained in this act shall be construed to prevent the binding of all Senate and House reports in the reserve volumes bound for and delivered to the Senate and House libraries: *Provided*, That not less than twelve copies of each report on bills for the payment or adjudication of claims against the Government shall be kept on file in the Senate document room.

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SEC. 58. Whenever printing not bearing a Congressional number shall be done for any Department or officer of the Government, except confidential matter, blank forms, and circular letters not of a public character, or shall be done for use of Congressional committees, not of a confidential character, two copies shall be sent, unless withheld by order of the committee, by the Public Printer to the Senate and House libraries, respectively, and one copy each to the document rooms of the Senate and House, for reference; and these copies shall not be removed; and of all publications of the Executive Departments not intended for their especial use, but made for distribution, five hundred copies shall be at once delivered to the *superintendent of documents* for distribution to designated depositories and State and Territorial libraries.

* * * * *

SEC. 61. The Public Printer shall appoint a competent person to act as superintendent of documents, and shall fix his salary. The superintendent of documents so designated and appointed is hereby authorized to sell at cost any public document in his charge, the distribution of which is not herein specifically directed, said cost to be estimated by the Public Printer and based upon printing from stereotyped plates; but only one copy of any document shall be sold to the same person, excepting libraries or schools by which additional copies are desired for separate departments thereof, and Members of Congress; and whenever any officer of the Government having in his charge documents published for sale shall desire to be relieved of the same he is hereby authorized to turn them over to the superintendent of documents, who shall receive and sell them under the provisions of this section. All moneys received from the sale of documents shall be returned to the Public Printer on the first day of each month and be by him covered into the Treasury monthly, and the superintendent of documents shall report annually the number of copies of each and every document sold

Witness: Post.

by him, and the price of the same. He shall also report monthly to the Public Printer the number of documents received by him and the disposition made of the same. He shall have *general supervision of the distribution of all public documents*, and to his custody shall be committed all documents subject to distribution, excepting those printed for the special official use of the Executive Departments, which shall be delivered to said Departments, and those printed for the use of the two Houses of Congress, which shall be delivered to the folding rooms of said Houses and distributed or delivered ready for distribution to Members and Delegates upon their order by the superintendents of the folding rooms of the Senate and House of Representatives.

* * * * *

SEC. 4. Hereafter the Secretary of State shall cause to be delivered to the Superintendent of Documents the Revised Statutes, supplements thereto, session laws, and Statutes at Large, to supply deficiencies, and to be sold by him under the provisions of section sixty-one of the Act approved January twelfth, eighteen hundred and ninety-five, entitled "An act providing for the public printing and binding and distribution of public documents." (Stat. L., vol. 30, p. 316, chap. 58.)

* * * * *

SEC. 63. The Secretary and Sergeant-at-Arms of the Senate and the Clerk and Doorkeeper of the House of Representatives shall cause an invoice to be made of all public documents stored in and about the Capitol, other than those belonging to the quota of Members of the present Congress, to the Library of Congress, and the Senate and House libraries and document rooms, and all such documents shall by the superintendents, respectively, of the Senate and House folding rooms be put to the credit of Senators, Representatives, and Delegates of the present Congress, in quantities equal in the number of volumes and as nearly as possible in value, to each Member of Congress, and said documents shall be distributed upon the orders of Senators, Representatives, and Delegates, each of whom shall be supplied by the superintendents of the folding rooms with a list of the number and character of the publications thus put to his credit: *Provided*, That before said apportionment is made copies of any of these documents desired for the use of committees of the Senate or House shall be delivered to the chairmen of such committees: *And provided further*, That four copies of each and all leather-bound documents shall be reserved and carefully stored, to be used hereafter in supplying deficiencies in the Senate and House libraries caused by wear or loss, and a similar invoice shall be prepared and distribution made as above provided at the convening in regular session of each successive Congress.

* * * * *

SEC. 67. All documents at present remaining in charge of the several Executive Departments, bureaus, and offices of the Government not required for official use shall be delivered to the Superintendent of Documents, and hereafter all public documents accumulating in said Departments, bureaus, and offices not needed for official use shall be annually turned over to the Superintendent of Documents for distribution or sale.

* * * * *

SEC. 98. The libraries of the eight Executive Departments, of the United States Military Academy, and United States Naval Academy are hereby constituted designated depositories of Government publications, and the Superintendent of Documents shall supply one copy of said publications, in the same form as supplied to other depositories, to each of said libraries.
(See also Revised Statutes, secs. 501, and 502.)

* * * * *

SEC. 68. Whenever in the division among Senators, Representatives, and Delegates of documents printed for the use of Congress there shall be an apportionment to each or either House in round numbers, the Public Printer shall not deliver the full number so accredited at the respective folding rooms, but only the largest multiple of the number constituting the full membership of each or either House, including the Secretary and Sergeant-at-Arms of the Senate and

(Witnesses: Post, Scott.)

Clerk and Doorkeeper of the House, which shall be contained in the round numbers thus accredited to each or either House, so that the number delivered shall divide evenly and without remainder among the members of the House to which they are delivered; and the remainder of all documents thus resulting shall be turned over to the superintendent of documents, to be distributed by him, first, to public and school libraries for the purpose of completing broken sets; second, to public and school libraries that have not been supplied with any portion of such sets, and, lastly, by sale to other persons; said libraries to be named to him by Senators, Representatives, and Delegates in Congress; and in this distribution the superintendent of documents shall see that as far as practicable an equal allowance is made to each Senator, Representative, and Delegate.

* * * * *

AN ACT To amend section sixty-eight, chapter twenty-three, of volume twenty-eight of the United States Statutes at Large.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section sixty-eight, chapter twenty-three, of volume twenty-eight of the United States Statutes at Large be, and the same is hereby, amended so that it shall read as follows:

"Whenever in the division among Senators, Representatives, and Delegates of documents printed for the use of Congress there shall be an apportionment to each or either House in round numbers, the Public Printer shall not deliver the full number so accredited at the respective folding rooms, but only the largest multiple of the number constituting the full membership of each or either House, including the Secretary and Sergeant-at-Arms of the Senate and Clerk, Sergeant-at-Arms, and Doorkeeper of the House, which shall be contained in the round numbers thus accredited to each or either House, so that the number delivered shall divide evenly and without remainder among the Members of the House to which they are delivered; and the remainder of the documents thus resulting shall be turned over to the superintendent of documents, to be distributed by him, first, to public and school libraries for the purpose of completing broken sets; second, to public and school libraries that have not been supplied with any portions of such sets; and, lastly, by sale to other persons; said libraries to be named to him by Senators, Representatives, and Delegates in Congress; and in this distribution the superintendent of documents shall see that as far as practicable an equal allowance is made to each Senator, Representative, and Delegate."

Approved, April 6, 1904.

JANUARY 5, 1907.

(Part of testimony, given on above date, before the Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF MR. W. P. SCOTT, SPECIAL EMPLOYEE OF THE CLERK'S DOCUMENT ROOM, HOUSE OF REPRESENTATIVES.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. What position do you hold, Mr. Scott?

Mr. SCOTT. I am a special employee of the Clerk's document room. I occupy the same position in the Clerk's document room that Mr. Grayson does in the House document room.

The CHAIRMAN. In the clerk's document room?

Mr. SCOTT. Yes, sir.

The CHAIRMAN. I find that under the apportionment prior to the adoption of the new regulations by the Joint Committee on Printing there were twenty copies of the detailed statement of expenditures in the Agricultural Department deposited with the Clerk of the House. Can you tell the committee what has been done with

(Witness: Scott.)

those twenty copies each year—what call has been made for them, etc.?

Mr. SCOTT. In the first place, we keep a file of all public documents.

The CHAIRMAN. Yes. That is what you call an office file?

Mr. SCOTT. Yes.

The CHAIRMAN. How many copies do you keep for that purpose?

Mr. SCOTT. We always put 2 copies in the files, and sometimes several more than that; but if the document is very large we generally put only 2 or 3 copies in the files. Then we furnish the Clerk of the House a copy, we furnish the file clerk of the House a copy, and the journal clerk of the House a copy, and the index clerk of the House a copy, and the distributing clerk of the House a copy, and the newspaper clerk of the House a copy.

The CHAIRMAN. What is done with the additional copies that you have left. That exhausts quite a number of them.

Mr. SCOTT. We give those away if there is any call for them.

The CHAIRMAN. Is there any call for this document I have just inquired about—the Expenditures of the Department of Agriculture?

Mr. SCOTT. Oh, once in a while I have had a call for it, but very seldom.

The CHAIRMAN. Then the copies that are deposited with the Clerk of the House are substantially distributed to men connected with the House?

Mr. SCOTT. That is an allotment for the Clerk's department.

The CHAIRMAN. Yes.

Mr. SCOTT. Now, if you will notice the Senate documents, the Clerk's department only receives 10 copies of each document.

The CHAIRMAN. Do you mean the Secretary of the Senate?

Mr. SCOTT. The Senate documents. We receive 20 of the House documents.

The CHAIRMAN. Yes.

Mr. SCOTT. We only receive 10 of the Senate documents.

The CHAIRMAN. I think I have not any table here giving the Senate documents.

Mr. SCOTT. That is the fact, nevertheless.

The CHAIRMAN. Yes.

Mr. SCOTT. When I was before the Printing Committee they asked me if that number could be reduced. Of course the number of 10 could not; but I consulted with the Chief Clerk about the matter, and we reduced the number of the House documents from 20 to 15, because we thought we could get along with that number.

The CHAIRMAN. Can you not reduce it still further?

Mr. SCOTT. Not very well. It takes every one of the 10 copies of the Senate documents, for instance.

The CHAIRMAN. To supply these various men?

Mr. SCOTT. To supply these men.

The CHAIRMAN. What use do they make of this document when they get it?

Mr. SCOTT. I do not think I can answer that question, Mr. Littlefield.

The CHAIRMAN. You do not have enough to do with the detail of it to know of what practical value it may be to them?

(Witness: Scott.)

Mr. SCOTT. No. The index clerk, I think, uses it in connection with his indexing business, and what use the file clerk makes of it I do not know. I know they are very anxious about getting it.

The CHAIRMAN. They have it for the purpose of keeping their files complete, I suppose, of all these documents?

Mr. SCOTT. I think they undertake to keep a copy of everything that is published. I have never examined their files, but I believe that is true.

The CHAIRMAN. Who directs the binding of a volume like that [indicating]? I am using, for illustration, a book called "Senate Reports, third session Fifty-third Congress, 1894-95, volume 1". That seems to bind up about everything.

Mr. SCOTT. That is a copy of an old book, left out of the old reserve documents. The reserve documents are now held by the Government Printer in stitched form and are never bound unless a Member or a Senator orders it done direct; not through our office and not through the Secretary of the Senate's office, but there is a provision in the law by which a Member orders his reserve documents bound direct.

Mr. SAMUEL. He puts it on a slip?

Mr. SCOTT. No.

Mr. SAMUEL. It is a special matter?

Mr. SCOTT. It is done by writing a letter to the Government Printer asking him to bind the reserve documents. Under the old law—I think the new law took effect in 1895—the reserve documents were bound in that shape, and for the Members of the House they came to our office and were folded and distributed as the Member directed.

The CHAIRMAN. Yes. Now, this is a compilation of Senate reports and other material?

Mr. SCOTT. Yes.

The CHAIRMAN. That is, this particular volume that we are using for illustration?

Mr. SCOTT. Yes.

The CHAIRMAN. Who, on the part of the House, designates what shall be printed in a particular volume of House documents; do you know? That is, who has charge of that particular matter?

Mr. FLOOD. Printing or binding?

The CHAIRMAN. Well, of binding together in one volume—that is what I mean—or determining what shall be bound in one volume.

Mr. SCOTT. That seems to be left to the Government Printing Office, so far as I know. I do not know anything about the reserve documents, except that I merely brought that copy in to show you that a part of this book is composed of valuable material.

The CHAIRMAN. Yes; that is true.

Mr. SCOTT. You see it contains the banking and currency reports, the report on national bank notes, etc., in the back; then these reports in the first part here are not of any particular value to anyone, but they are bound consecutively.

The CHAIRMAN. In consecutive numbers?

Mr. SCOTT. In consecutive numbers.

Mr. SAMUEL. Only by order of some Member?

The CHAIRMAN. No; that is a public binding.

Mr. SCOTT. That is the reserve.

(Witnesses: Scott, Berry.)

The CHAIRMAN. The Members do not have any control over the reserve publications.

Mr. FLOOD. And there is no index to these things at all; you just put these in a number of volumes and make no index to them?

Mr. SCOTT. No; the numbers run consecutively, you see.

Mr. FLOOD. Yes; but you have to know the number of the document in order to be able to find it?

Mr. SCOTT. The number of the document or report; yes, sir.

The CHAIRMAN. The Members do not have any control over the reserve documents except as they make designations of where they are to go?

Mr. SCOTT. They do over the reserve documents; yes. A Member controls that—that is, the Member does not have to receive it unless he wants to. It will be held by the Government Printer in stitched form.

Mr. FLOOD. But any Member can have any document bound that he wishes to?

Mr. SCOTT. Yes; he can order it bound.

The CHAIRMAN. But the reserve documents we have in this table, submitted with the regulations of the Joint Committee on Printing, are included under these heads—"Superintendent of documents, depositories?"

Mr. SCOTT. Yes.

The CHAIRMAN. We understand that those are all bound up?

Mr. SCOTT. Yes.

The CHAIRMAN. And distributed to the various libraries and such other institutions as may be designated, and they are designated, with the exception of a small number, something like 14 or 16. The Smithsonian Institute, foreign exchanges—they are also all bound—53 of them; the Senate library, 15; the House library, 15; the Library of Congress, 9, and the State Department, 1. Those are all bound, making a total bound reserve, prior to the regulation, of 595. I do not understand that those are subject to the order of Members of the House except as they distribute or order distributed the number bound up for depositories.

Mr. SCOTT. It is only the Member's personal number that they control, and that is turned over to the superintendent of documents.

The CHAIRMAN. That is all, Mr. Scott; we are greatly obliged to you.

STATEMENT OF F. V. BERRY, ESQ., ACTING CHIEF CLERK, BUREAU OF INTERNATIONAL EXCHANGES, SMITHSONIAN INSTITUTION.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. Your position is what, please?

Mr. BERRY. Acting chief clerk of the Bureau of International Exchanges.

The CHAIRMAN. We wanted to inquire what disposition is made of 53 bound volumes of the detailed statement of expenditures of the Agricultural Department which was sent to the Smithsonian Institution for foreign exchanges; that is, what is done with them, and what their utility is?

(Witnesses: Berry, Halvorsen.)

Mr. BERRY. They are sent to the royal and national libraries on the continents of Europe, Asia, and Africa; also to British, Central, and South America, and deposited in the royal and national libraries of those countries. That work is done on behalf of the Library of Congress; and those libraries are supposed, in return, to send the Government publications of their respective countries, which are deposited in the Library of Congress.

The CHAIRMAN. Oh, yes; so that that is a matter of exchange?

Mr. BERRY. A matter of exchange.

The CHAIRMAN. Between the Library of Congress and the other great libraries of the different countries?

Mr. BERRY. Yes, sir.

The CHAIRMAN. And the whole 53 copies, I suppose, are used for that purpose?

Mr. BERRY. Yes, sir.

The CHAIRMAN. And I infer from this schedule that every public document that is published and bound by the Government takes the same course through your department, to a certain extent?

Mr. BERRY. That is the law.

The CHAIRMAN. And you have a uniform number for distribution?

Mr. BERRY. Yes, sir.

The CHAIRMAN. And they are all distributed, are they?

Mr. BERRY. Yes, sir.

The CHAIRMAN. And that, you say, is done by virtue of the provisions of some general statute?

Mr. BERRY. Yes, sir.

The CHAIRMAN. Are these documents, thus distributed, as a rule bound in cloth or in sheep?

Mr. BERRY. In sheep, mostly; there are some few in cloth, and some in paper.

The CHAIRMAN. Have you had experience in connection with libraries in the use of books, so as to have an opinion upon the question as to which is the most durable and useful binding—sheep or cloth?

Mr. BERRY. No, sir.

STATEMENT OF J. R. HALVORSEN, ESQ., SUPERINTENDENT OF FOLDING ROOM, HOUSE OF REPRESENTATIVES.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You may state what your position is.

Mr. HALVORSEN. Superintendent of the folding room.

The CHAIRMAN. And you may state to the committee in a general way, if you please, what you receive in the folding room in the line of public documents, and especially House documents.

Mr. HALVORSEN. From the Agricultural Department—is that what you mean?

The CHAIRMAN. No; generally; from the Agricultural Department and generally.

Mr. HALVORSEN. And other Departments? I do not know that my memory will carry me out in giving you a full detailed statement.

The CHAIRMAN. Just in a general way.

(Witness: Halvorsen.)

MR. HALVORSEN. We handle possibly between 1,000,000 and 2,000,000 documents every year from the different Departments—that is, those that come regularly.

The CHAIRMAN. Are they bound or unbound?

MR. HALVORSEN. Ours are bound, with the exception of some that come from the Department of Agriculture, such as the Bureau of Soils bulletins, that come to each Member. They are given direct 2,000 copies to each Member from the respective districts represented when a survey has been made in his district.

The CHAIRMAN. Yes.

MR. HALVORSEN. They are not distributed to others at all, and with the exception of these, other unbound documents go to the Members pro rata. Then we have what is generally known as the commerce and finance monthly summary report and the consular reports from the Department of Commerce and Labor (these are unbound documents), and irrigation papers, professional papers, geological bulletins, that come from the Geological Survey. Some of the bulletins that used to be bound have been reduced in size, such as those that come from the Smithsonian—the ethnological reports—that is, their last bulletins, 31 and 32.

The CHAIRMAN. The great bulk of the publications that are for distribution, subject to the control of Members in the matter of distribution, come through the folding room?

MR. HALVORSEN. Yes, sir.

The CHAIRMAN. All or substantially all of them?

MR. HALVORSEN. Well, those already named.

The CHAIRMAN. And with the exceptions that you have named they are all bound either in sheep or in cloth?

MR. HALVORSEN. They are bound principally in cloth; very few in sheep. The Indian Laws and Treaties were bound in sheep. That is the only document that has come to us of recent years bound in sheep; but outside of that they come in cloth.

The CHAIRMAN. How long have you been in the folding room?

MR. HALVORSEN. I have been there nearly seven years.

The CHAIRMAN. Do you have any of the detailed statements of expenditures of the Agriculture Department in the folding room for distribution?

MR. HALVORSEN. No, sir; they do not come to us.

The CHAIRMAN. They do not come to you. There have been some recent investigations in reference to accumulations in that Department that are uncalled for or undistributed.

MR. HALVORSEN. Yes, sir.

The CHAIRMAN. Is there any report bringing that work up to date?

MR. HALVORSEN. There is nothing particularly. The only way that we are able to govern that matter is under the direction of the committee. Under the last rules that they have established we have the privilege of ordering the full quota that belongs to the whole membership of the House, or we can order such number as, according to our experience, is necessary to meet the demands from time to time.

The CHAIRMAN. That is, if it turns out that in case of a particular document substantially no demand has been made for it, you can reduce the quota or the allotment?

(Witness: Halvorsen.)

Mr. HALVORSEN. Yes, sir.

The CHAIRMAN. To such as you think will supply the demand that might naturally exist therefor?

Mr. HALVORSEN. That is exactly the case.

The CHAIRMAN. That regulation, however, has only been in force within the last year or so?

Mr. HALVORSEN. That is all; within the past year.

The CHAIRMAN. Yes.

Mr. HALVORSEN. And since then we have been somewhat relieved from that congestion which followed from the accumulation of the full quota that was formerly sent to the House.

The CHAIRMAN. What do you do with the accumulated volumes?

Mr. HALVORSEN. We have to hold them until the Members entitled to them call for them.

The CHAIRMAN. He has them to his credit?

Mr. HALVORSEN. Yes, sir.

The CHAIRMAN. About what have the accumulations aggregated up to the present time, roughly speaking?

Mr. HALVORSEN. You mean of the last—

The CHAIRMAN. Of all the documents.

Mr. HALVORSEN. All the documents?

The CHAIRMAN. Yes, that you now have on hand.

Mr. HALVORSEN. I do not think there has been much of a reduction. There are possibly in the neighborhood of 2,000,000, as shown by the last inventory.

The CHAIRMAN. You have, then, substantially 2,000,000 public documents on hand uncalled for?

Mr. HALVORSEN. Not very far from it; yes, sir.

The CHAIRMAN. And those have been accumulating for years?

Mr. HALVORSEN. Yes, sir.

The CHAIRMAN. Are they mainly old publications, or do they consist largely of certain documents which have not proved to be of any great value?

Mr. HALVORSEN. They consist principally of duplications, or triplings in some instances; departmental reports which are duplicated in other reports.

The CHAIRMAN. Yes.

Mr. HALVORSEN. Now, take the message and documents, abridging an annual report. That is covered again in part, or at least referred to in others, so that it becomes in a measure a duplication of the regular report of that particular department.

The CHAIRMAN. Has any method been adopted to eliminate that duplication?

Mr. HALVORSEN. I believe so. The report of the National Museum this year is simply a departmental report. The scientific side is left out.

The CHAIRMAN. That is published elsewhere?

Mr. HALVORSEN. Yes, sir; that is expected to be published elsewhere; and of course what they intend to do I do not know. They control their own publications, but it is claimed that they are going to publish bulletins on contributions to knowledge.

The CHAIRMAN. That will not cumber up the public documents?

(Witness: Halvorsen.)

Mr. HALVORSEN. Oh, no. The National Museum report this time is about an inch thick. Instead of that it used to be a book as large as that, or even larger [indicating a volume about $2\frac{1}{2}$ inches thick].

The CHAIRMAN. Could you give any approximation as to how much duplication there is in this accumulation which you have on hand?

Mr. HALVORSEN. It is hard to say how much duplication there is.

The CHAIRMAN. Where is this large accumulation of approximately 2,000,000 volumes stored?

Mr. HALVORSEN. In the different vaults that we have.

The CHAIRMAN. About the Capitol?

Mr. HALVORSEN. Partly in the Capitol and partly at the Annex, near North Capitol street.

The CHAIRMAN. Is that in a building owned by the Government, or does the Government have to rent it?

Mr. HALVORSEN. That we rent.

The CHAIRMAN. Under what Department of the Government would the rental of that building come, for instance? That is, what Department of the Government would have charge of the expenditure of money for that purpose?

Mr. HALVORSEN. The renting is done through the Clerk of the House.

The CHAIRMAN. Do you know what it costs for rental for that storage purpose?

Mr. HALVORSEN. I am not sure, but I did see an account of it, and the account was rendered, I think, in the Clerk's report.

The CHAIRMAN. Will you ascertain for us, so that you can put it in as an answer to the question?

Mr. HALVORSEN. Yes, sir.

The CHAIRMAN. Do you rent it through another Department?

Mr. HALVORSEN. It is rented through the Clerk of the House for the purpose of doing the folding for our office, as well as a storage room for some of the documents that we can not store in our vaults in the Capitol.

The CHAIRMAN. But it is used for two purposes—for operative and for storage purposes?

Mr. HALVORSEN. Yes, sir.

Mr. FLOOD. It is a case of one Department of the Government renting from another Department, then?

The CHAIRMAN. Apparently; but we can find out. Is that the way you understand it?

Mr. HALVORSEN. I could not say as to that—as to how the arrangement is; but I think there is a party, whether he has any connection with the Government or not I could not say—but certainly rent is paid out of the contingent fund to this party.

The CHAIRMAN. You can ascertain this amount for us?

Mr. HALVORSEN. Yes; I can ascertain the amount.

The CHAIRMAN. Will you be kind enough to ascertain for us the amount, and the party from whom the building is rented, and the circumstances under which the arrangement is made, and submit that as an answer to that question, so that we can put that right into the report?

(Witness: Halvorsen.)

Mr. HALVORSEN. Yes, sir. Of course the detailed account of that you might be more able to ascertain through the Clerk of the House.

The CHAIRMAN. Mr. McDowell?

Mr. HALVORSEN. Or the Chief Clerk, Mr. Browning.

The CHAIRMAN. Mr. Browning; yes. We can do that, unless you can get it for us.

Mr. HALVORSEN. That will be all right.

The answer is as follows: The rental is \$5,000 per annum, and is paid to one Wilbur Nash, of this city, from the contingent fund by the Clerk of the House. The property is owned by Mr. Nash.

The CHAIRMAN. What has been the experience of the folding room in connection with the storage of these public documents, part of them bound in cloth and part in sheep, as to the durability and utility of the several bindings? That is, which lasts the longer?

Mr. HALVORSEN. The more expensive binding naturally lasts the longer. Some of these documents that come to us for Members are not bound as well as they ought to be, but possibly as well bound as the bindery can afford for the money expended.

The CHAIRMAN. The point is, is there any distinction between the sheep and cloth with reference to their durability?

Mr. HALVORSEN. I think so.

Mr. FLOOD. First-class cloth?

The CHAIRMAN. That is, assuming both to be equally well bound.

Mr. HALVORSEN. I think that the binding is as good as it can be—as well as it can be done, covering the expenses of either one or the other class.

The CHAIRMAN. Which lasts the longer, the sheep or the cloth?

Mr. HALVORSEN. I think the sheep will naturally last the longer.

Mr. FLOOD. Is it not a fact that the cloth that is used by the Government Printing Office is very inferior in quality?

Mr. HALVORSEN. I am not able to judge as to the quality of the material. I am not a binder, and I am not able to say, but we know that the binding is poorer than it really ought to be, especially on some documents.

Mr. SAMUEL. Have you any authority to dispose of the accumulated documents?

Mr. HALVORSEN. No; we have no authority delegated to us, except to keep the account and meet the demands of the Members on their credits.

The CHAIRMAN. You do not make any sales?

Mr. HALVORSEN. No; we can not do that. The documents are prorated to each district, and at the disposal of each Member representing, respectively.

Mr. SAMUEL. If there are any documents that are old and of no value, you have no way of doing away with them, either by calls from a Member, or by sale?

Mr. HALVORSEN. No, sir. The only way we do about that is this: You have had some experience, perhaps—you have heard from our office urging the disposition of some of those documents. We try in every way to get rid of accumulation that is possible, without imposing too much on the generosity of the Members. We want to get them off our hands.

(Witness: Halvorsen.)

The CHAIRMAN. Every little while we get an installment of books, bound up, that we never have heard from before. I suppose that is the result of an effort on the part of somebody to get rid of this congestion, is it not—to bind the material and get it out?

Mr. HALVORSEN. No; we only handle the books that come to us for Members' credit. That is all.

The CHAIRMAN. Everything that you have in the folding room either is now or has been subject to the order of some Congressman?

Mr. HALVORSEN. Yes, sir.

The CHAIRMAN. The rule is, I suppose, where a Congressman goes out and another Congressman comes in from the same district, to put on to his quota whatever has not been exhausted by the previous Congressman?

Mr. HALVORSEN. Yes, sir.

The CHAIRMAN. So that theoretically, at least, every Member of the House ought to have at his disposal his proportion that has not been exhausted of this vast accumulation?

Mr. HALVORSEN. The documents are considered to belong to his respective district, and are at his disposal.

The CHAIRMAN. The Member representing the district for the time being?

Mr. HALVORSEN. Yes, sir.

The CHAIRMAN. I think that covers everything I wish to ask.

Mr. SAMUEL. Have you an accumulation of yearbooks and horse books?

Mr. HALVORSEN. Yes; we have an accumulation of both, though we are getting rid of the old yearbooks very well, and could get rid of more if we only had the authority to dispose of them or could be delegated the authority to dispose of them. Some Members want yearbooks, and some Members are in want of horse books, and have none to credit. The only way we can help him is to say frankly that, "If you will apply to some of the older Members, they may possibly help you." We do not intend to impose upon the Members by giving the names of Members having some to credit. We simply say, "Apply to some of the older Members, and see if you can get them from them."

Mr. SAMUEL. There is no way, then, in which a Member can get an old document, except in that way?

Mr. HALVORSEN. No, sir.

Mr. SAMUEL. Unless it happens to be in his quota?

Mr. HALVORSEN. No. We do not give information in our department directly, as to whom of the Members have these books, without Members' consent.

Mr. SAMUEL. You say that long ago they were credited to the district?

Mr. HALVORSEN. Yes, sir; they were credited to the district.

Mr. SAMUEL. If there were any documents that were not distributed by any of the Member's predecessors, he could have those books to his credit, could he?

Mr. HALVORSEN. The present Member has the books to his credit. The account is transferred from one Congress to another, in a new set of books; and at the head of each account, followed by the dis-

(Witnesses: Halvorsen, Zappone, Hill.)

trict, is the name of the Member representing that district; so whatever has been left by his predecessor is at his disposal.

Mr. SAMUEL. Does that only apply to the immediate predecessor, or to previous ones?

Mr. HALVORSEN. To any present Member to whom they may be handed down.

Mr. SAMUEL. How does a Member ascertain what is to his credit? By going to the folding room?

Mr. HALVORSEN. You may have a statement every sixty days showing all the credits upon request.

Mr. SAMUEL. That statement as sent from the folding room covers all credits in the folding room?

Mr. HALVORSEN. It covers all credits at the time.

Mr. ZAPPONE. Mr. Chairman, before closing the record on the subject of the printing of public documents pertaining to the Department of Agriculture, I would like to suggest that you send for the Chief of the Division of Publications of the Department of Agriculture. He has had probably twenty years' experience, and I think he can answer many of the questions that you have asked that have not been answered satisfactorily.

The CHAIRMAN. That is a first-rate suggestion. We will be very glad to do that.

Mr. ZAPPONE. And he can also give you the cost of these various publications, and their value to the public.

(It was ordered that the gentleman referred to, Mr. George Wm. Hill, Chief of the Division of Publications, should be sent for.)

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
Monday, January 7, 1907.

Committee called to order at 10 o'clock a. m.

Present: Hon. Charles E. Littlefield (chairman); Hon. Charles R. Davis, Hon. Edmund W. Samuel, Hon. Henry B. Flood, Hon. Ezekiel S. Candler, jr., and Hon. Robert C. Davey.

STATEMENT OF MR. GEORGE W. HILL, DEPARTMENT EDITOR AND CHIEF OF THE DIVISION OF PUBLICATIONS, DEPARTMENT OF AGRICULTURE.

(Mr. Hill was sworn by the chairman.)

The CHAIRMAN. What is your position, Mr. Hill?

Mr. HILL. I am the Department editor and chief of the division of publications.

The CHAIRMAN. What are the principal documents that are issued by the Department under your supervision?

Mr. HILL. The principal documents are, first, those that are printed by law which may be required either by statute or Congressional resolution. In the first case, the annual report of the Department, which consists of two parts, and printed under a law which was approved January 12, 1895. One part is the business report and is printed in an edition of 6,000. The other part is what we call the Yearbook. The law provides that the Yearbook shall be complete in itself, and

(Witnesses: Hill, Zappone.)

it has hitherto been published in an edition of 500,000, there being special provision made for \$300,000 for the expense. That is probably the most important publication from the point of view of size and cost that we issue. Then there are seven or eight publications, among which may be mentioned the annual report of the Bureau of Animal Industry, the annual report of the Weather Bureau, the annual report of the Field Operations of the Bureau of Soils, the annual report of the Office of Experiment Stations, and some of these that are provided for statutorily.

The CHAIRMAN. Do you print a uniform number?

Mr. HILL. The Yearbook hitherto has been printed in an edition of 500,000, but the Committee on Printing had an amendment made to the law last year so that this year it may be printed in different editions.

The CHAIRMAN. That is, the successive editions as may be called for?

Mr. HILL. Yes, sir.

The CHAIRMAN. What was the occasion of that?

Mr. HILL. To prevent the immense accumulation. It was found that a great many Yearbooks, of which each Member has about a thousand copies to his credit, in round numbers, were left undistributed, and I believe a year after the Yearbook was issued they found as many as 150,000 or 160,000 copies in the folding rooms of the Senate and House.

The CHAIRMAN. Are we to understand that heretofore, under an edition of 500,000, that there has been substantially a surplus of 150,000 to 160,000 each year, approximately?

Mr. HILL. I mean that probably twelve months afterwards there would be that many undistributed and twelve months later there would be some more of them undistributed. It meant that there was for immediate demand a large surplus. In other words, something like 350,000 volumes were probably adequate to the immediate demand.

Mr. FLOOD. What are the publications that you issue, if you will kindly repeat that again?

Mr. HILL. We issue the annual report of the sugar-beet industry in addition to those that I have mentioned, but without looking it up I can not always determine those that are provided for in the statute and those that are provided for by resolution.

Mr. SAMUEL. Have you charge of the issue of the farmers' bulletins?

Mr. HILL. I have charge of all publications of the Department.

Mr. ZAPPONE. The report made by the appointment clerk to Congress—is not that an annual report?

Mr. HILL. The publication of that is not provided for statutorily.

Mr. ZAPPONE. You are differentiating between what is paid for by the Department and what is paid for by Congress?

Mr. HILL. Exactly. There is a certain distinction. Under the present law everything is paid for by our Department. I was referring to the year 1906. The law expressly provides that the Secretary's report shall be a report of the business transacted in the several bureaus.

(Witness: Hill.)

Mr. SAMUEL. Suppose we take up each report, the Secretary's report first.

Mr. HILL. Very well. The first report is that of the Secretary himself, which is published as part 1 of the annual report of the Department. It is a document by itself, of which the statute provides for 5,000 copies. We reprint that in different forms because it is not nearly enough for us. We reprint that in an edition of 50,000 copies as a special report of the Secretary's office.

Mr. FLOOD. What is done with the report?

Mr. HILL. It goes mainly and very largely to the crop correspondents—about 40,000 to the crop correspondents of the Bureau of Statistics.

Mr. FLOOD. What disposition do you make of the 5,000 copies—the first edition?

Mr. HILL. First of all they go to colleges and stations, and a certain number go to representatives of the Weather Bureau and representatives of the Bureau of Animal Industry and several other large bureaus. The special county correspondents get them—that is, about 2,800—and it takes about 2,000 to satisfy the others. It is gone as soon as it is issued.

Mr. FLOOD. Under existing law you do not think enough copies of the Secretary's report are printed?

Mr. HILL. We have hard work to supply the demand for the Secretary's report. It is reprinted in the Yearbook under a provision of law which says that the Yearbook of the Department shall contain a succinct account of the operations of the Department for the year, and the most succinct account of the general operations of the Department that we can find is the Secretary's annual report, and it is printed in the Yearbook.

Mr. SAMUEL. Then it is printed twice?

Mr. HILL. It is printed three times. So far as the total number of Yearbooks at our disposal is concerned, that 500,000 copies that were provided by law—somewhat reduced by this recent law permitting them to be published in successive editions—of that number we only get 30,000, no more than we got eighteen or nineteen years ago, when I first came in. We do not get enough, and we sometimes have to send round a begging letter to the different Members of Congress and Senators asking them, if they are not going to use them, if they will let us have some of their yearly quota for our use.

Mr. SAMUEL. About how many do you estimate will be required?

Mr. HILL. Fifty thousand will be needed for the Department use. We employ a very large number of persons in gratuitous work. Professor Moore has more than 3,000—about 4,000—voluntary observers. These men render a great deal of useful service during the year, and they can not understand when they write to us for a Yearbook why it is we say to them that they should apply to their Member of Congress. It is the same way with the crop correspondents of the Bureau of Statistics, who have also a number of men who render a good deal of very tangible service by active cooperation with the Department. Really there is not a bureau that has not several hundred, and there are several thousand required in the Bureau of Statistics. Their active correspondents for special service get information for the Department, sometimes requiring them to get a

(Witnesses: Hill, Zappone.)

buggy and drive around for half a day, and perhaps they will take with them one of our own men and spend a couple of days with him working on a special line of inquiry. We feel that the least we can do for that man is to send him one of the Yearbooks of the Department, which is our biggest and best book, but we do not have enough to satisfy that class of people.

Mr. SAMUEL. The annual report of the Secretary is a statutory report?

Mr. HILL. Yes, sir.

Mr. SAMUEL. By publishing that in the Yearbook do you think it is necessary to publish it separately too?

Mr. HILL. Well, yes; you see we don't send them to the same people. The people who get the Yearbook do not get the annual report. We send the annual report to a large number of people who never see the Yearbook at all. The Bureau of Statistics really has on its list over 250,000 correspondents, and we do not begin to satisfy anywhere near all of them.

Mr. ZAPPONE. May I make a remark here? Mr. Hill, is not the type kept set up of the Secretary's annual report so that it can be included in the Yearbook, and therefore there is really no additional cost for that part of the work?

Mr. HILL. Yes, sir.

Mr. SAMUEL. Of course, it being a statutory provision we have nothing to say in regard to the matter; but it occurred to me that if they were going to print it in the Yearbook we could send the Yearbook to those getting the report, and they would have a much more valuable book.

Mr. ZAPPONE. Is not the annual report a requirement of law; does it not have to be submitted to the President, and in the same form in which the various reports of the other Cabinet officials are submitted?

Mr. HILL. We report directly to the President, and it forms usually part of the President's message and of the Messages and Papers.

Mr. ZAPPONE. It is a very small volume, you will notice. I have a copy in my hand.

Mr. SAMUEL. How many copies of the first annual report of the Secretary are issued?

Mr. HILL. Five thousand statutorily—the same as of all Cabinet officers.

Mr. SAMUEL. I notice by this printed list that there were 4,854.

Mr. FLOOD. How do you get the other edition of 50,000?

Mr. HILL. We publish that as a special report of the Secretary's office.

Mr. FLOOD. Who is that distributed to?

Mr. HILL. To the crop correspondents entirely and to other people who do not get the Yearbook, as a rule.

Mr. SAMUEL. How many crop correspondents do you have?

Mr. HILL. Over 250,000, I think.

Mr. SAMUEL. Are they supposed to receive a copy of that report?

Mr. HILL. They are supposed to receive copies of our publications. I can not say of that report, because we haven't enough of them to give them each a copy; but we try to pay them for their services by accommodating them with publications.

(Witness: Hill.)

Mr. FLOOD. How are the 470,000 Yearbooks distributed?

Mr. HILL. Entirely through the folding rooms of the House and the Senate on orders of Representatives and Senators.

Mr. FLOOD. Do you mean that Senators and Representatives get the whole 470,000?

Mr. HILL. Yes, sir; each Senator and Member getting about a thousand copies.

Mr. DAVEY. I think we received 952 copies last year as our quota.

Mr. SAMUEL. You made a statement a while ago that there were 150,000 or 160,000 of these Yearbooks left over.

Mr. HILL. That is my recollection of the report made to the Committee on Printing. The Committee on Printing investigated this matter very thoroughly last year with a view to reducing the cost of printing, and they have a very full statement as to the accumulation of books; but my recollection is that their report showed that twelve months after an issue of any particular Yearbook there were sometimes 150,000 or 160,000 copies still on hand.

Mr. FLOOD. Which means that the Members did not send them out promptly?

Mr. HILL. That is all it means. My suggestion has been that Members who do not use their reports up to a certain time should return half of them to the general fund to be redistributed through the Department.

Mr. SAMUEL. Then it is your opinion that the Department should have at least 50,000?

Mr. HILL. Yes, sir. We used to get 10 per cent when the edition was 300,000, or 30,000. We still get 30,000, though the edition is increased to half a million.

Mr. CANDLER. What was the recommendation of the Committee on Printing as to the manner in which they shall be printed?

Mr. HILL. They provide that there shall now be printed editions of 50,000 or 100,000, and that new editions shall be called for as the numbers desired exceed the supply. When it runs down to fifteen or twenty thousand copies, the Public Printer, on advice of the Committee on Printing, will then print another edition.

Mr. FLOOD. How will you be able to distribute them?

Mr. HILL. There are some Members who do not use them at all; that is the idea.

Mr. FLOOD. How would you distribute them among the Members? Some of the Members want their full quota while others might not want them. If you only printed them in editions of 50,000, how would you distribute them?

Mr. HILL. I am not speaking by the card because I was not responsible for that thing, but I am speaking as I recollect the recommendations of the committee. They do not interfere with the Members' quota, consequently if you draw your quota and you want your quota full, you will get it full, but exhaust that edition that much sooner. They do not reduce the quota in proportion to the edition. This is the first time, I understand, that the law has been enforced.

Mr. FLOOD. How many copies of the annual report of the Weather Bureau are printed?

Mr. HILL. I think there are 4,000.

(Witnesses: Hill, Moore.)

Professor MOORE. Four thousand, 1,000 going to the Bureau, 2,000 to the House, and 1,000 to the Senate. If you will allow me to interject a remark there, I would say that I believe the number is entirely too large. I do not think Members of Congress use those reports very generally, because they are rather technical and only a few people can use them; but I think the number, without injury to anyone, could be reduced, probably one-half, easily. Five hundred copies would be an abundance for us. At present many of the reports are sent to people who do not use them. They are used principally by a library, an academy of sciences, or some student of therapeutics of the air, like a physician who studies the effects of climate on disease.

Mr. HILL. Your report is technical, while ours is mainly popular.

Professor MOORE. I should think a much smaller edition would do, if put at the disposal of the Weather Bureau, with the understanding that they will honor all requests of Members of Congress or Senators.

Mr. SAMUEL. What sized edition would you suggest?

Professor MOORE. I should estimate that 2,000 copies would be an abundance for all purposes.

Mr. SAMUEL. How many copies of the annual report of the Bureau of Animal Industry do you issue?

Mr. HILL. Thirty thousand; 9,000 to the Department and 21,000 divided between the Senate and the House.

Mr. SAMUEL. Is that sufficient, or too many?

Mr. HILL. We do not get too many, I can assure you of that.

Mr. SAMUEL. You get 9,000?

Mr. HILL. Yes. Now, as to the distribution by Senators and Representatives, I could not speak positively, because I do not remember just what the report of the Committee on Printing shows on that.

Mr. SAMUEL. Is that 9,000 sufficient for your use?

Mr. HILL. I think that is about right.

Professor MOORE. May I interject another remark there in regard to the 4,000 copies of the Weather Bureau report? That number is determined by law. It is statutory.

Mr. SAMUEL. The usual statutory provision. How about the annual report of the Bureau of Soils?

Mr. HILL. We have just made quite a difference in regard to that. That is a peculiar report. For each separate soil survey made 1,000 copies go to the Department, 2,000 copies to the Member of Congress in whose district or districts the survey is located, and 500 copies to each one of the Senators of the State in which the survey is made. Those go out as advanced sheets before the report is bound. Of course that number is more or less floating, because sometimes a survey will affect two districts and sometimes but one. That question came up in the State of Washington, as they have three Members from that State at large and no particular districts, but I do not know how the Public Printer finally decided to print them, although I think he gave them 2,000 apiece. But there was an appropriation for binding these at the end of the year in two volumes—the text in one volume and the maps in a case—and I think it was 6,000 or 8,000.

Mr. SAMUEL. This report shows 6,354.

Mr. HILL. Well, this year we have only asked for 1,000 copies of the bound report, the greater demand being for the surveys. The

(Witness: Hill.)

Member of Congress in whose district the survey is made gets a good many demands for the surveys, but they do not care about a survey made in Texas or Maine or in other States. They want the survey that affects them, and the consequence is that we have found it possible to curtail the number issued in bound form. There were a great many of those left over in the hands of the folding rooms of the Senate and House, but not so many with us, because we have a good many demands from scientific institutions, educational institutions, and libraries, which absorb a good many.

Mr. SAMUEL. How many copies of the annual report of the sugar-beet industry do you issue?

Mr. HILL. I can not remember just now without reference to my list.

Mr. FLOOD. I suppose the demand for that is simply local.

Mr. HILL. That is an instance of the waste owing to the provision of law, and we need some special legislation to avoid that. When a publication is issued with a proviso that so many shall go to the Senate and so many to the House they are divided equally, I understand, between Senators and Representatives. With a report like that upon the sugar-beet industry it is a glaring absurdity, because a man who is not in a sugar-beet district does not want a copy any more than a wagon needs a fifth wheel, while those men who are in the sugar-beet belt do not get as many as they want. That should be changed around. We get tremendously urgent appeals from the Representatives in the sugar-beet belt for extra copies, which we have not got, and at the same time we know that many of the Members are getting them who really do not need them; but that is something which we can not control.

Mr. SAMUEL. Now, how is it as to the report on the experiment stations?

Mr. HILL. I think that is 8,000; maybe more than that, but I do not remember.

Mr. FLOOD. You mean that those are the different agricultural experiment stations?

Mr. HILL. No; it is a report of the chief of experiment stations, the bureau of our Department, which is the channel of communication or intercourse or co-relation of work between the Department of Agriculture and the various stations in the several States.

Mr. FLOOD. The State stations.

Mr. HILL. Under the Hatch Act there is a co-relation established; there is a bond, and this is the bureau through which that bond is operated. They issue an annual report, which includes a review of the station work of the year.

Mr. FLOOD. But the Department has various experiment stations, has it not?

Mr. HILL. The stations at Hawaii and Alaska and Porto Rico are placed under the immediate control of the Secretary of Agriculture.

Mr. FLOOD. But you have experiment stations for cattle and horses and tobacco and other things.

Mr. HILL. In the different bureaus; but we do not call them agricultural experiment stations in the same sense that we do the State experiment stations.

(Witness: Hill.)

Mr. FLOOD. To whom do the gentlemen in charge of these stations make reports?

Mr. HILL. To the chief of the bureau having the matter in charge. We have an experiment station at Tennallytown that reports to the Bureau of Animal Industry.

Mr. FLOOD. Where do we get the reports?

Mr. HILL. In the reports of the Bureau of Animal Industry. And there may be some tobacco experiments which you will get in the report of the Bureau of Plant Industry, and some of them in the report of the Bureau of Soils. There is a lot of that work done in both bureaus, but these are not what we call regular experiment stations.

Mr. SAMUEL. As to the farmers' bulletins; how many of those?

Mr. HILL. I think we issue in the neighborhood of six to seven millions of the farmers' bulletins. We issue all that we have money to pay for, and we have calls for a great many more than we issue.

Mr. DAVIS. What becomes of those not distributed or not called for?

Mr. HILL. There are very few not called for.

Mr. DAVIS. Are they transferred to others; is that the idea?

Mr. HILL. Transferred to others. We used to carry over as many as 2,500,000 copies from one year to another, and the following year we added them to the estimated number that we were going to print that year, and thus had a larger proportion to give to Members. In that way we were giving the Members a quota of about 15,000. Congress was actually providing for about 10,000 and we were using the overlap. Two years ago the transfers from city Members to Members representing rural districts became so numerous that our overlap was reduced from 2,500,000 to 1,500,000, and we ought to have reduced the quota 2,000, but the Secretary hated to do that, so we only reduced it 1,000. Last year they cleaned us out so that we got down to hardpan, and this year the quota is reduced to about 10,000, which is about what the money will pay for. The overlap was insignificant and did not cut any figure.

Mr. DAVEY. If the quota is not used during the year, is it taken away?

Mr. HILL. There is a provision of law that gives you eleven months only. Four-fifths of the Farmers' Bulletins by law are reserved for use of Senators and Representatives, with the proviso that on the 31st of May any undistributed quota shall go back to the Department.

Mr. SAMUEL. What is the quota of each Member; do you know?

Mr. HILL. This year it is 10,000 for each Member and each Senator.

Mr. SAMUEL. Crop Correspondence, Bureau of Statistics. How many are there of those?

Mr. HILL. There is no special annual report of the Bureau of Statistics beyond the report that he makes to the Secretary.

Mr. SAMUEL. It is not published separately?

Mr. HILL. No.

Mr. CANDLER. Referring again to the Farmers' Bulletins, do you believe that there are enough of those printed, or should there be an additional amount?

Mr. HILL. I do not think that there are enough of those printed. It has the largest amount of information and the most widely distrib-

(Witnesses: Hill, Zappone.)

uted in proportion to the cost of anything that we publish. The cost of the Farmers' Bulletins is a fraction over a cent and a half apiece, and they are published in the cheapest form that we can use consistent with propriety. We put no cover on them, and we print them on a paper that will permit of running them through a very fast press. We do not put expensive illustrations in them, and we keep them down to a maximum of 48 pages. We try to run them about 32 pages on the average. Each one takes up some one particular subject, with information on that subject only. The result is that there is no waste, as there is where you publish a book upon a large number of subjects. There is, say, a very important article on rice in that book, and a man writes for that particular article. He will get the article on rice, but he will also get 70 or 80 or 100 pages of matter that he does not care for. With the Farmers' Bulletins it is different. A man writes to us saying that he wants something about the apple, and he gets information upon the apple and nothing but the apple. There is no superfluous matter. He may write to us that he wants something about the diseases of potatoes, and he gets that and nothing else. Each subject is segregated in a separate bulletin. We now have over 200 of them from which to select.

Mr. SAMUEL. If 6,000,000 or 7,000,000 are not enough, what would you estimate should be published?

Mr. HILL. We did not have too many for Members when we gave them 15,000 apiece, instead of 10,000, and that would necessitate an increase of about 50 per cent, or an increase to nine or ten million.

Mr. CANDLER. And the demand is really growing all the time?

Mr. HILL. Yes, sir. And you can readily understand that that is a class of publication that we have to give to correspondents who do work for us freely. Then there is another class of demand that is growing wonderfully for Farmers' Bulletins, and that is from the educational institutions, normal schools and high schools. They want them in quantities—that is, they will want 25, say, for a class. It seems like nothing to give 25 copies, at a cost of 40 cents, to those who are studying this subject, but when you get demands from educational institutions all over the United States it makes a very large draft.

Mr. ZAPPONE. When these publications are used as text-books by educational institutions; does not the law provide that they shall be purchased and paid for by those institutions?

Mr. HILL. The Public Printer has always been authorized to sell a number not exceeding 250, but the law provides that he shall receive the order therefor with the cash before it goes to press, and that is the difficulty.

Mr. CANDLER. Then you would recommend that this edition of Farmers' Bulletins be increased at least 50 per cent?

Mr. HILL. Yes; to 9,000,000 or 10,000,000.

Mr. ZAPPONE. May I read the recommendation of the Secretary in his annual report in that connection? It says:

The total number of copies of Farmers' Bulletins issued during the fiscal year 1906 was 6,568,000. The demand for Farmers' Bulletins by Senators and Representatives, who, under the law, are entitled to 80 per cent of the whole number printed, has been so much larger than usual that practically none were left to carry over to the present fiscal year—

(Witnesses: Hill, Zappone.)

Meaning the fiscal year 1907—

There being, therefore, no surplus available, and the appropriation for the current fiscal year 1907 being no larger than formerly, the number available for each Congressman will this year be greatly reduced. I have therefore felt obliged to include provision for an increase in the number of these bulletins in my estimate for the ensuing year 1908. The number of copies of Farmers' Bulletins distributed during the past year on Congressional orders aggregated 5,279,476.

This will explain the necessity for the increase mentioned by Mr. Hill.

Mr. SAMUEL. Do you recognize requests not indorsed by Congressmen or Senators?

Mr. HILL. Oh, yes.

Mr. SAMUEL. Are they charged to the Congressman's quota?

Mr. HILL. No, sir; we charge nothing to a Congressman's quota that is not ordered over his own signature. That goes out of the 20 per cent reserve for the Department. We get a great many demands from our own people. They are very handy things to use in correspondence. For instance, the Pomologist gets a letter inquiring about something in regard to apples, or something of that sort. Instead of writing a letter of four or five pages of typewritten matter, he writes a brief letter and sends a copy of the Farmers' Bulletin, marking the page. It being published at a cost of a fraction over a cent and a half, it is a great deal better to do that than to spend time writing a long letter. We use a great many in that way.

Mr. SAMUEL. How does the percentage of the requests from outsiders compare with those made by Congressmen and Senators?

Mr. HILL. Of our 20 per cent, 15, or three-fourth, will be distributed in accordance with miscellaneous demands, and the Members of Congress, as I say, are asking for their entire 80 per cent now. They have a very great many ways of distributing them. I can not say how many are in response to direct demands, but some of the Members have a very carefully worked out system for distribution without waiting for applications, while others, I think, simply send them out as asked for, while others send them out through granges and various institutions.

Mr. ZAPPONE. There are also quite a number of publications sold to the public through the Superintendent of Public Documents, and I would suggest that Mr. Hill explain that.

Mr. HILL. Departmental publications are the only ones that I have spoken of, those provided for by statutory law, and those, such as Farmers' Bulletins, issued by the Department as a whole.

Mr. FLOOD. Before you get through you might suggest any changes you think of which ought to be made with respect to the publications you have referred to.

Mr. HILL. An increase in the number of Yearbooks and an increase in the number of Farmers' Bulletins are the only things that I would recommend at present.

Mr. FLOOD. And a decrease in what?

Mr. HILL. We have actually made a decrease in the bound volumes of the report of the Bureau of Soils and Field Operations.

Mr. SAMUEL. You also recommend a decrease in the report of the Weather Bureau?

(Witness: Hill.)

Mr. HILL. Professor Moore interjected a recommendation for a decrease from 4,000 to 2,000 in the report of the Weather Bureau.

I wanted to say in regard to the general accumulation, and in speaking of the Department publications generally, that is, the Bureau publications, as we call them, which are issued in each bureau, as its own series—bulletins and circulars generally—that they are of a less popular character than the Farmers' Bulletins. They are reports on their investigations, and are issued in comparatively small editions. It is, of course, necessary, when these men make investigations, that they shall report the results, and those results have to be reported in a more or less technical manner in order to satisfy the people engaged in the same line of work, mostly scientific men who are interested in the departmental work and want to know what methods are pursued in arriving at certain conclusions in order to test their value. So it is necessary now with respect to those publications to be a little more technical than with the Farmers' Bulletins or the Yearbook. Consequently, while they are not all technical, the technical publications are all issued as bulletins of the several departments. The technical reports appear in the bureau series.

Now, when I first came here, we used to issue those in very large editions, and I found a tremendous accumulation of undistributed publications. It was a natural thing that a man who had conducted an investigation during two or three years, which to him seemed to be of great importance, and by which he had arrived at results which seemed to him extremely valuable, would anticipate a tremendous demand for them, and before my office was established each bureau made out its own requisitions, and I think they were initialed or something by the chief clerk, who had but little time to look into the matter. The result was that they would ask for an edition of fifteen or twenty thousand where three to five thousand would have been sufficient.

We have changed all of that; we began to change it at once, and by keeping the plates on hand, if the demand grows beyond their anticipations, then an edition is issued to satisfy them. Take a bulletin of 60, 70, or 80 pages. The requisition is received at my office, itself accompanied by a scheme of distribution in which the chief of the bureau asking for the publication indicates just what he wants to do with it, and how many it will take for such purpose. The edition generally runs from three to five or six thousand, and when the edition is exhausted if the demand continues, and it is a demand which it seems proper to be met, it is a very easy thing, as the plates are in existence, to order a reprint, which will be ready in a few weeks, and in that way we avoid a great accumulation. But in spite of everything we can do we carry a tremendous lot of publications on hand, because we issue so many. I simply want to assure the committee that we do all we can to avoid an accumulation of publications for which there is no particular demand.

Mr. DAVIS. What ultimately becomes of this accumulation?

Mr. HILL. The law provides that we shall turn it over to the superintendent of documents, and I will say in the early days I made him some very handsome presents, for which he did not seem to be very grateful.

Mr. DAVIS. What does he do with them?

(Witness: Hill.)

Mr. HILL. I don't know, but he carries them on both shoulders, and pays a pretty good rent for storage.

Mr. DAVIS. The Government provides storage.

Mr. HILL. I think there should be some arrangement by which a departmental committee should be charged, in connection with the superintendent of documents and the Public Printer, with things like that, who should have the authority to destroy them or sell them for waste paper.

Mr. DAVIS. Or turn them over to some one who would like to have them.

Mr. HILL. They do that now. The superintendent of documents tells me that he has sent circulars to libraries with lists of what he has, offering these publications in the most seductive terms, and free of expense, if they will only indicate their willingness to receive them.

Mr. DAVIS. It might decrease the deficiency in the postal service if they were not sent.

Mr. HILL. But anything is better than paying rent for their storage if they are worth nothing.

Mr. FLOOD. They seem to be stored by the Public Printer.

Mr. HILL. Yes. By adopting the methods I have described we have reduced our accumulations of actual departmental publications very much indeed.

Mr. DAVIS. Then you think, Mr. Hill, that a committee to investigate what should be done with these surplus publications would be advisable?

Mr. HILL. I think it would be a very good idea, because naturally a man, if he has a certain number of publications which have become obsolete or useless, would hesitate to destroy them without some kind of formal authority, and would not like to be caught in the act of selling them for waste paper or burning them.

Mr. SAMUEL. Is it not a fact that they are doing that now?

Mr. HILL. I don't know.

Mr. FLOOD. They only do that at the Printing Office.

Mr. HILL. I do not know what the law says about that.

Mr. SAMUEL. Are you through with departmental publications?

Mr. HILL. There is one thing that I wanted to call attention to, and that is the sale of publications. That is something that I have been hammering at a good many years, and it is only in recent years that the superintendent of documents—since 1895—has been able to dispose of documents by sale. In issuing each particular publication, which we do for the information of the public, we divide them between those that are distributed gratuitously, like the Farmers' Bulletins and Circulars of Information and those to which prices are affixed, and we put in a note upon those to which prices are affixed that they are for sale by the superintendent of documents. It has not progressed very rapidly, but still satisfactorily, I think. It is only a few years ago that we thought he did a big thing when he sold five or six thousand copies of our publications. Last year he informed me that he sold 47,744 of the total publications of the Department out of a total of something over 75,000, showing that more than half of the publications sold were publications of this Department. At the same time our publications are of a very much cheaper

(Witness: Hill.)

grade than those sold by other Departments, because our 47,000 copies yielded only \$5,388, while the others amounted to 28,000 copies and yielded \$11,000.

Mr. DAVIS. Do you sell those at a price that compensates the Government for printing?

Mr. HILL. It does that at least, and I think it does more. I do not think we ought to ask more. I think the price they should be sold at should be the actual cost of producing the extra copies. For instance, I regard it as the part of the proper duty of the Government to publish its reports with a certain number of copies to satisfy certain demands, and then I think extra copies ought to be sold at as much as it costs per thousand to print them. I do not think we ought to try to make a profit out of the publication of them, although, perhaps, 10 per cent might be added for the handling of the matter by the superintendent of documents. They still sell some Yearbooks, and they have sold them as low as 65 cents apiece. I think now they are holding them at \$1.

Mr. FLOOD. How do they get them to sell?

Mr. HILL. I do not know. The superintendent of documents quotes them, and I suppose that in the division of the total edition between Congressmen there are leftovers. I only know that he does quote them, and his report shows that he has sold a few copies.

Mr. FLOOD. What becomes of the proceeds?

Mr. HILL. The proceeds go to the Treasury; but we have an amendment to the law introduced a year or two ago enabling the superintendent of documents to utilize sums received from publications in reprinting other particular publications with the consent of the Secretary, and he is printing quite a number. I think it is stated here that he reprinted 43 publications during the year, paid for out of the funds received for other publications.

Mr. FLOOD. Do you see how the superintendent of documents can have any Yearbooks for sale?

Mr. HILL. The only way I could suggest is that I presume in the distribution there are some that are left over. That is the only way I can think of. I infer that he got a few copies each year left over in the hands of the Public Printer.

Mr. DAVIS. Is not a certain percentage of all documents left in the hands of the Department itself for distribution as occasion may require?

Mr. HILL. Oh, yes.

Mr. DAVIS. Isn't it possible, then, that some of those documents that the superintendent now has are the accumulation or surplus of documents not disposed of by the Department?

Mr. HILL. I can not conceive of his getting any Yearbooks from us, because we never have enough. But if there is by chance any surplus of other publications we are privileged to turn them over to him.

Mr. DAVIS. I can not imagine how he can get them to sell, because I could distribute a great many more than I have.

Mr. HILL. I fancy it must be as I have suggested, that in a division which gives so many to each Member of Congress there are a few hundred copies left over, and if there are less than enough to give one extra copy to each Member I presume they would remain in the

(Witnesses: Hill, Ashion.)

hands of the Public Printer. But still I do not fancy that he sells over 50 or 60 copies a year.

Mr. SAMUEL. Will you now explain with respect to any of the other publications that you have referred to?

Mr. HILL. I have said all that I think will interest the members of the committee in regard to that.

I wanted to call attention to the fact that there was another class of publication that is handled in such a way as to prevent accumulation. Our aim is to publish just enough to satisfy the demands that the chief sees he must have for immediate use and leave a few hundred copies over for miscellaneous demand, and then reprint as occasion may require.

Mr. SAMUEL. I suppose that will be all, so far as Mr. Hill is concerned, and we will reserve the examination of Mr. Hill in reference to the expense of his office until later.

JANUARY 12, 1907.

(Part of testimony given on above date before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF MR. H. F. ASHION, ASSISTANT INSPECTOR AND FOREMAN OF BINDING, GOVERNMENT PRINTING OFFICE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You are the foreman of binding?

Mr. ASHION. I am the assistant inspector, and acting foreman of binding at present.

The CHAIRMAN. How long have you held that place?

Mr. ASHION. About six months.

The CHAIRMAN. Have you practical knowledge of the work of the department so that you can state to the committee the cost of the various characters of bindings—for instance, sheep, cloth, and buckram?

Mr. ASHION. Yes, sir. If I had known what the committee wanted I should have brought some samples. The price varies according to the style of binding.

The CHAIRMAN. That would go into details that we would not care about. I would like to have you state, if you can—take the average public document that may be bound in sheep or cloth or buckram, and state, if you can, the cost of each binding. What we want is to get the difference between the two or three bindings.

Mr. ASHION. It all depends on the number of pages contained in the volume, the style of binding, and the workmanship.

The CHAIRMAN. This volume that I have here contains about 700 pages, and that would cost to bind from 70 cents to \$1.50?

Mr. ASHION. Well, a 700-page book, bound in sheep, would cost 75 cents.

The CHAIRMAN. In sheep?

Mr. ASHION. Yes, sir.

The CHAIRMAN. The cost varying largely with the lettering?

Mr. ASHION. With the lettering and the special work.

The CHAIRMAN. What would it cost to bind such a volume in good cloth? Your statement is that it would cost from 70 cents to \$1.50 for the sheep binding.

(Witness: Ashion.)

Mr. ASHION. Yes, sir. A 700-page book would cost about 16 cents in good cloth, and 75 cents in sheep for the binding.

The CHAIRMAN. And what would the cloth binding cost in the same manner and with the same lettering?

Mr. ASHION. Do you want the cost of the printing and paper?

The CHAIRMAN. Just give us the cost of the binding, if it costs more or less.

Mr. ASHION. With that amount of lettering it would cost 22 cents.

The CHAIRMAN. The actual cost to the Government. Does it cost the Government more or less to bind a volume like this [exhibiting] in the same number and the same quality of work in sheep or cloth?

Mr. ASHION. It costs more in sheep than in cloth.

The CHAIRMAN. How much more?

Mr. ASHION. A 700-page book in cloth 22 cents, and in sheep 75 cents, making a difference of 53 cents.

The CHAIRMAN (interrupting). What would you charge to bind that in cloth?

Mr. ASHION. Twenty-two cents.

The CHAIRMAN. You say you "charge." Is it the policy of the Public Printer to keep an account with the various Departments and you keep the books for the purpose of ascertaining the cost of printing in the various Departments?

Mr. ASHION. Yes, sir. If you desire, I will give you some facts and figures. I will send them to you and quote the prices on binding.

The CHAIRMAN. I would be glad to have you do so.

When you say "charge," is your charge based upon the actual cost to the Public Printer for doing the work?

Mr. ASHION. We add a certain percentage to the flat cost. We add 20 per cent in the bindery.

The CHAIRMAN. Is the flat cost intended to be the actual cost to the Government in the Printing Office?

Mr. ASHION. Yes, sir; with the 20 per cent added in the bindery.

The CHAIRMAN. What is the 20 per cent added for?

Mr. ASHION. For the clerk hire, laborers, and wear and tear of machinery.

The CHAIRMAN. And that is estimated to cover the real cost?

Mr. ASHION. Yes, sir.

Mr. SAMUEL. Do you estimate the cost of storage in that?

Mr. ASHION. No, sir.

The CHAIRMAN. What we would like to have you do is to prepare a statement, taking a typical volume of reports or documents ranging anywhere from 500 to 700 pages, so that we may be able to see the difference in cost between the three bindings, assuming them all to be good, and perhaps the best of their character—that is, sheep, cloth, and buckram.

Mr. ASHION. And morocco?

The CHAIRMAN. We do not care anything about morocco. Documents are not ordinarily bound in morocco. Unless specially ordered, you do not bind them in morocco as a rule?

Mr. ASHION. No, sir.

The CHAIRMAN. When you bind them for public distribution, you bind them either in sheep or cloth?

(Witness: Ashion.)

Mr. ASHION. Yes, sir. The Members' reserve are bound in half morocco.

The CHAIRMAN. But those are not for general public distribution?

Mr. ASHION. No, sir; only for Senators and Members.

The CHAIRMAN. For instance, there are over 500 copies of the Report on the Expenditures of the Department of Agriculture bound by the Public Printer for Congress. Those would be bound, unless otherwise ordered, in either sheep or cloth?

Mr. ASHION. Yes, sir.

The CHAIRMAN. We would like to have you give us a detailed statement of the cost of those several kinds of bindings, assuming that the same kind of work is done in each instance so far as lettering and putting the volume together is concerned. What we want to get at is to see just what it costs to send out a certain book in sheep and what it would cost to bind the same book in the same way in cloth or buckram.

Mr. ASHION. In the manufacturing of the several kinds of binding different methods are pursued.

Sheep binding is sewed by hand, forwarded by hand, and finished by hand, which makes it the most durable, most artistic, and most costly, and would cost for a 700-page book 75 cents per volume.

Buckram comes next, and is manufactured exclusively by machine. The difference between buckram and cloth is only in the cost of the outside cover, and would cost 24 cents per volume.

Cloth comes next, and is bound exclusively by machine, and would cost 22 cents per volume.

In each instance the prices quoted are for large lots and for an equal amount of lettering on each style of binding, and for binding only.

The CHAIRMAN. What has been your business before in the Government Printing Office?

Mr. ASHION. I was in the bindery. I formerly had charge of a department in it.

The CHAIRMAN. How long have you been there?

Mr. ASHION. Fourteen years.

The CHAIRMAN. Then you have had practical experience so as to be able to state the relative durability of the several kinds of binding. Which will last the longest, assuming that the work done in each case is the same?

Mr. ASHION. Yes, sir; sheep lasts the best, and buckram is better than cloth.

The CHAIRMAN. How does cloth last?

Mr. ASHION. Cloth does not last nearly as long as sheep. Sheep binding is the strongest.

The CHAIRMAN. Does the cloth deteriorate as fast or faster than the sheep?

Mr. ASHION. Faster.

The CHAIRMAN. Sheep gradually rots on the shelves?

Mr. ASHION. Yes, sir; in time, but the method used in manufacturing the book insures longer life than buckram or cloth.

The CHAIRMAN. About how long will cloth last?

Mr. ASHION. It all depends upon how you handle it.

(Witness: Ashion.)

The CHAIRMAN. Take books that are not subject to much use and are handled only very occasionally?

Mr. ASHION. They last indefinitely. The Public Printer submitted some samples to Secretary Wilson of the Agricultural Department for a book formerly lettered in gold, of which they print 500,000 copies, lettered in aluminum, and with his authority we changed the lettering from gold to aluminum and made a saving of \$6,000 on that one item. You have probably noticed that the Congressional Directory is lettered in aluminum. The new edition will be out to-day. That change to aluminum saved over \$275 on the edition.

The CHAIRMAN. That made a saving of \$6,000 on the publications of the Agricultural Department?

Mr. ASHION. Yes, sir.

The CHAIRMAN. And if applied to all the Departments of the Government there would be a very handsome saving?

Mr. ASHION. There would.

The CHAIRMAN. Does your Department, unless otherwise instructed, make the lettering in aluminum wherever it is appropriate?

Mr. ASHION. No, sir.

The CHAIRMAN. Is this aluminum lettering durable?

Mr. ASHION. Yes, sir; it lasts as long as the book.

The CHAIRMAN. And it is just as good as the gold?

Mr. ASHION. Yes, sir.

The CHAIRMAN. Is there any reason why it should not be used?

Mr. ASHION. No, sir. The Secretary of Agriculture agreed to use aluminum. Have you an agricultural report here?

The CHAIRMAN. No. This is a good illustration. Are we to understand that unless otherwise ordered the Printing Office proposes hereafter to use aluminum lettering instead of gold?

Mr. ASHION. Wherever we possibly can, if the heads of the Departments will agree to it.

The CHAIRMAN. Are you having any difficulty in introducing the aluminum lettering?

Mr. ASHION. We have only gone to a few Departments.

The CHAIRMAN. So far as you have gone the Departments have very cheerfully concurred in the proposition, as I understand it?

Mr. ASHION. Yes, sir.

The CHAIRMAN. We will let you know when the committee meets again, but you get the facts and material for us so that we can put it right in as a part of your statement.

Mr. ASHION. When do you want it?

The CHAIRMAN. As soon as you can conveniently supply it. We are very much obliged to you.

(Witness: Ashion.)

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
Tuesday, January 15, 1907.

The committee this day met.

Present: Messrs. Littlefield (chairman), Samuel, and Flood.

ADDITIONAL STATEMENT OF MR. H. F. ASHION, ASSISTANT INSPECTOR AND FOREMAN OF BINDING, GOVERNMENT PRINTING OFFICE.

The CHAIRMAN. Mr. Ashion, have you the information that you were to get?

Mr. ASHION. Yes, sir.

The CHAIRMAN. Please state what the facts are?

Mr. ASHION. I have two books as a basis to go by, books used in the Department of Agriculture. This [exhibiting book] is the Secretary's report for 1905, where we substituted aluminum leaf for gold, on an edition of 360,000, and made a saving of over \$6,000.

The CHAIRMAN. What is the difference in cost between the respective bindings to which you call attention?

Mr. ASHION. In cloth we charge 60 cents for that volume [indicating]; that includes the book as it is—printing, lithographing, paper, and everything—a fraction over 60 cents.

The CHAIRMAN. What do you charge for the same volume bound in the same way, with the same quality of workmanship, in law sheep?

Mr. ASHION. \$1.21.

The CHAIRMAN. That is 61 cents extra for the law sheep binding?

Mr. ASHION. Yes, sir; the sheep binding is mostly hand work.

The CHAIRMAN. How many volumes are bound annually in the Government Printing Office—that is, approximately?

Mr. ASHION. Of the different kinds?

The CHAIRMAN. Of all public documents bound by the Printing Office.

Mr. ASHION. In the sheep binding we average about 595 copies of every Congressional document.

The CHAIRMAN. What would be the aggregate amount, approximately, of volumes that are bound in law sheep, as a matter of course, in accordance with your general practice?

Mr. ASHION. We bind 595 copies of every Congressional document.

The CHAIRMAN. I mean the aggregate amount of work done by the Printing Office for all departments—all public documents and everything.

Mr. ASHION. That is a pretty big proposition. I would have to get the last report of the Public Printer and refer to that.

The CHAIRMAN. Could you give us an approximation of the number of volumes that are annually bound in law sheep?

Mr. ASHION. About 250,000.

The CHAIRMAN. And if those volumes thus bound in law sheep were bound in cloth it would be a saving to the Government of something like \$150,000?

Mr. ASHION. Yes, sir.

The CHAIRMAN. Are they bound in law sheep by virtue of any provision of law or is that a matter of discretion with the Printing Office?

(Witness: Ashion.)

Mr. ASHION. They are only bound in accordance with law. The reports of the Department of Agriculture, like the one you have there, are all bound in cloth, and, by law, they are entitled to so many sheep-bound copies, which are the reserve.

The CHAIRMAN. They are entitled to so many sheep-bound copies, but does the law make it imperative upon the Public Printer to bind them in law sheep?

Mr. ASHION. Yes, sir.

The CHAIRMAN. That is, the law requires books to be bound in law sheep, whether or no?

Mr. ASHION. Yes, sir; the reserve.

The CHAIRMAN. So that the Public Printer, who has charge in the last analysis of the work, has no discretion, as you understand it?

Mr. ASHION. No, sir.

The CHAIRMAN. He could not change the binding from law sheep to cloth and save this \$150,000 a year?

Mr. ASHION. No, sir.

The CHAIRMAN. Because the law requires the work to be done in law sheep?

Mr. ASHION. Yes, sir.

The CHAIRMAN. Will you be kind enough to furnish the committee with a copy of the law that makes that requirement, so it can be added as a part of your examination?

Mr. ASHION. Yes, sir. It is as follows:

LAWS GOVERNING THE PUBLIC PRINTING AND BINDING.

RESERVE.

Sec.
24. Daily Record.

Sec.
54. House and Senate documents.

SEC. 24. There shall be reserved by the Public Printer from the quota of each Member of Congress and Delegate one copy of the Congressional Record in unstitched form, to be delivered to each Member or Delegate; and there shall be furnished to each standing committee of Congress one copy, which copies for Members and committees shall be bound promptly in paper when each semi-monthly index shall be issued, and shall be delivered without delay.

SEC. 54. Whenever any document or report shall be ordered printed by Congress, such order to print shall signify the "usual number" of copies for binding and distribution among those entitled to receive them. No greater number shall be printed unless ordered by either House, or as hereinafter provided. When a special number of a document or report is ordered printed, the usual number shall also be printed, unless already ordered. The usual number of documents and reports shall be one thousand six hundred and eighty-two copies, which shall be distributed as follows:

Of the House documents and reports, unbound.—To the Senate document room, one hundred and fifty copies; to the office of the Secretary of the Senate, ten copies; to the House document room, four hundred and twenty copies; to the Clerk's office of the House, ten copies.

Of the Senate documents and reports, unbound.—To the Senate document room, two hundred and twenty copies; office of the Secretary of the Senate, ten copies; to the House document room, three hundred and sixty copies; to the Clerk's office of the House, ten copies.

That of the number printed, the Public Printer shall bind one thousand and eighty-two copies, which shall be distributed as follows:

Of the House documents and reports, bound.—To the Senate library, fifteen copies; to the Library of Congress, two copies, and fifty additional copies for foreign exchanges; to the House library, fifteen copies; to the superintendent of documents, five hundred copies, for distribution to the State and Territorial libraries and designated depositories.

(Witness: Ashion.)

Of the Senate documents and reports, bound.—To the Senate library, fifteen copies; to the Library of Congress, two copies, and fifty copies additional for foreign exchanges; to the House library, fifteen copies; to the superintendent of documents, five hundred copies, for distribution to State and Territorial libraries and designated depositories. These documents shall be bound in full sheep, and in binding documents the Public Printer shall give precedence to those that are to be distributed to libraries and to designated depositories: *Provided*. That any State or Territorial library or designated depository entitled to documents that may prefer to have its documents in unbound form may do so by notifying the superintendent of documents to that effect prior to the convening of each Congress.

The remainder of said documents and reports shall be reserved by the Public Printer in unstitched form, and shall be held subject to be bound in the number provided by law, upon orders from the Vice-President, Senators, Representatives, Delegates, Secretary of the Senate, and Clerk of the House, in such binding as they shall select, except full morocco or calf; and when not called for and delivered within two years after printing shall be delivered in unbound form to the superintendent of documents for distribution. All of the "usual number" shall be printed at one time.

The CHAIRMAN. In addition to the books bound in cloth and in law sheep there is more or less binding in morocco?

MR. ASHION. Yes, sir; what we call the Members' reserve. There was a law passed which gives every Member of Congress and every Senator the privilege of having one copy of every document published by the Government bound in half morocco. In the Fifty-eighth Congress there were 338 separate documents printed, and each Congressman and Senator is entitled by law to a copy of each one of those documents bound in half morocco.

The CHAIRMAN. So whether the order is given or not the law requires the printing department to take those documents and bind them in half morocco?

MR. ASHION. No, sir; Members have to make a requisition for them.

The CHAIRMAN. Does it become operative unless he makes a requisition?

MR. ASHION. No, sir; not unless he makes a requisition for them.

The CHAIRMAN. The morocco binding authorized by law is not furnished unless required by the Members?

MR. ASHION. Senators and Members are entitled to one volume of every document printed in the Congress they are in. Some Senators and Members only take part of the volumes, and make a requisition to have those certain volumes bound in half morocco, any shade.

The CHAIRMAN. How much would the document that you have just exhibited cost bound in morocco?

MR. ASHION. \$1.25.

The CHAIRMAN. It costs \$1.21 in law sheep?

MR. ASHION. Yes, sir.

The CHAIRMAN. And it does not cost any more in morocco?

MR. ASHION. Four cents more.

The CHAIRMAN. Does not the material cost a great deal more?

MR. ASHION. Not very much more.

The CHAIRMAN. There are so many more bound in morocco than in law sheep?

MR. ASHION. No, sir. In the Fifty-eighth Congress there were 198,000 volumes bound in half morocco for Members and Senators.

The CHAIRMAN. But you bound 250,000 volumes in law sheep?

(Witness: Ashion.)

Mr. ASHION. Yes, sir; approximately. That takes in all the Departments of the Government.

The CHAIRMAN (interrupting). But the point is, as I understood you to say, that you bound so many more in morocco that you could bind them cheaper than in law sheep; but the fact is you bound 250,000 in law sheep and only 190,000 in morocco?

Mr. ASHION. We do not bind them cheaper. I am quoting you the scheduled price, as charged in the bindery, for binding Members' reserve in half morocco.

The CHAIRMAN. You say that you bind in so much larger quantities in morocco, and yet you have only 190,000 volumes in morocco and 250,000 in law sheep. I do not know that I understand the figures.

Mr. ASHION. I am only taking the Congressional documents that we bind in law sheep.

The CHAIRMAN. Can you tell me what the difference in the cost of the raw material is that is used for binding half morocco and the law sheep?

Mr. ASHION. Morocco costs \$14 per dozen; sheep, \$8.45 per dozen. In law-sheep binding the books are sewed by hand, whereas the cloth-bound books are sewed on a sewing machine.

The CHAIRMAN. The sewing by hand is the best work?

Mr. ASHION. Yes, sir.

The CHAIRMAN. Which is the most durable?

Mr. ASHION. Hand sewing.

The CHAIRMAN. Suppose the cloth-bound book was bound up in as good shape as the law sheep?

Mr. ASHION. They are not.

The CHAIRMAN. But suppose they were?

Mr. ASHION. It is impossible to bind a cloth-bound book in as good shape.

The CHAIRMAN. Can not you get work of as high quality?

Mr. ASHION. The binding would be different.

The CHAIRMAN. Why could it not be sewed as tight?

Mr. ASHION. It will not hold. It is bound up differently. You can examine both books and see. This book [indicating] is bound with leather and that makes it so much stronger.

The CHAIRMAN. I can not understand why you can not sew the book that is bound in cloth by hand as well as the book that is bound in law sheep.

Mr. ASHION. If you sewed it by hand it would cost so much more.

The CHAIRMAN. Yes; but you would get a better quality of binding?

Mr. ASHION. A better quality of sewing.

The CHAIRMAN. Is not that an element in the binding?

Mr. ASHION. Yes, sir; it makes the book last longer.

The CHAIRMAN. How much more does it cost?

Mr. ASHION. The book sewed by hand costs 6 cents and the book sewed on the machine costs 2½ cents.

The CHAIRMAN. It costs just about twice as much to sew by hand as by machine; it adds about 3¾ cents to the cost of the volume?

Mr. ASHION. Yes, sir.

The CHAIRMAN. Is there any other element of cost involved in making an efficient binding outside of the sewing by hand?

(Witness: Ashion.)

Mr. ASHION. Yes, sir; the method of manufacturing, the leather-bound books being done by hand.

The CHAIRMAN. Except the material, is there anything in the workmanship?

Mr. ASHION. Yes, sir; finishing and extra gold work.

The CHAIRMAN. That is just the ornamentation. That adds nothing to the utility of the book. These titles could be put on in aluminum on a cloth-bound book just the same as on the other and produce the same result with one impression?

Mr. ASHION. Yes, sir.

The CHAIRMAN. That is, all you have to do is to set up the type and you have the same thing on the cloth-bound book as on the law-sheep bound book and it gives just exactly the same information?

Mr. ASHION. Yes, sir.

The CHAIRMAN. There is nothing I can see except the cost of the hand work that increases the cost of the volume when it is bound in law sheep, except the material used.

Mr. ASHION. Yes, sir. What I want to say is that all the octavo-size books like this [indicating] cost from 50 cents to \$1.50.

The CHAIRMAN. When you take fresh, new material that element does not enter into it?

Mr. ASHION. No, sir.

The CHAIRMAN. The 250,000 volumes you have been speaking of are in the main fresh, new material?

Mr. ASHION. Yes, sir.

The CHAIRMAN. I suppose it is practically all fresh, new material?

Mr. ASHION. Yes, sir.

The CHAIRMAN. That covers everything, and we are obliged to you.

FEBRUARY 8, 1907.

SIR: Referring to the testimony of Mr. H. F. Ashion before the Committee on Expenditures in the Department of Agriculture, on January 12 and 15, 1907, regarding the saving to the Government by having the Year Book of the Department of Agriculture lettered with aluminum instead of gold, the committee desires the estimated amount that would be saved during a fiscal year were all the bound publications of the different Departments lettered with aluminum instead of gold. Of course, it is understood that this figure can only be given approximately, and it will be appreciated if the information can be furnished at an early date.

Very respectfully,

CHARLES E. LITTLEFIELD,

Chairman, Committee on Expenditures in the Department of Agriculture.

HON. CHARLES A. STILLINGS,

*Public Printer, Government Printing Office,
Washington, D. C.*

OFFICE OF THE PUBLIC PRINTER,

Washington, February 12, 1907.

SIR: In answer to yours of February 8, asking the approximate amount that would be saved during a fiscal year if all bound publications of the different Departments were lettered with aluminum instead of gold, I have to reply that the acting foreman of binding estimates that the approximate amount saved would be \$12,000.

Very truly yours,

CHAS. A. STILLINGS,

Public Printer.

HON. CHARLES E. LITTLEFIELD,

*Chairman, Committee on Expenditures in the
Department of Agriculture, House of Representatives.*

(Witness: Meyer.)

JANUARY 12, 1907.

(Part of testimony, given on above date, before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF MR. H. H. B. MEYER, AN EMPLOYEE OF THE LIBRARY OF CONGRESS.

(The witness was sworn by the chairman.)

The CHAIRMAN. In what branch of the Government service are you employed?

Mr. MEYER. In the Library of Congress.

The CHAIRMAN. How long have you been there?

Mr. MEYER. Two years.

The CHAIRMAN. And have you made the question of the durability of the various kinds of bindings such as are used nowadays, such as law sheep and calf, a matter of investigation?

Mr. MEYER. Yes.

The CHAIRMAN. To what extent have you investigated it?

Mr. MEYER. I have never done any work in binding myself, but I have observed in the various libraries with which I have been connected the effect of time on the bindings, leather and cloth.

The CHAIRMAN. How long have you been connected with libraries so as to make these observations?

Mr. MEYER. Five years directly engaged in library work, and before that I was, as an engineer, very much interested in technical libraries, and made it a point to look at bindings right along.

The CHAIRMAN. And have you made a special investigation of the subject?

Mr. MEYER. I had to, last year, in connection with my work in the periodical division of the Library of Congress.

The CHAIRMAN. For what purpose?

Mr. MEYER. To see what kind of binding, as far as material is concerned, would be best for our heavy newspapers.

The CHAIRMAN. That is whether sheep would be best, or cloth, or what?

Mr. MEYER. Buckram, or duck, or various other kinds of cloth, or various kinds of leather.

The CHAIRMAN. Would you be kind enough to give the committee the result of your various investigations and of your experience as to the durability of the various kinds of binding?

Mr. MEYER. Well, in regard to leather, my observation has been that good morocco is very durable, but it is expensive and very few books are bound in that leather. By good morocco I mean real goat-skin, not any of the various imitations found on the market under that name. More commonly they use calf or sheep. The oldest specimens of both these leathers are very good—say, that which was used before 1860—but the later specimens that you find in bindings are poor.

The CHAIRMAN. What of leather or sheep?

Mr. MEYER. Sheep—both sheep and calf—these are the two kinds of leather that are used for binding heavy books, law books, and newspapers.

(Witness: Meyer.)

The CHAIRMAN. Sheep is almost universally used for law books?

Mr. MEYER. Sheep; yes.

The CHAIRMAN. What do you find to be the durability of sheep?

Mr. MEYER. It deteriorates very rapidly; gets brittle and undergoes what they call a red decay. It takes on a redder color and loses its flexibility and crumbles and cracks down the hinges, and then the sides leave the body of the book.

The CHAIRMAN. After how long a time does that take place?

Mr. MEYER. That varies with the specimen of leather that has been used. If it is very poor it will not last over eight or ten years, but twenty-five years would generally show the character of the leather.

The CHAIRMAN. What is the fact about cloth?

Mr. MEYER. We find when we use cloth, if the books are left on the shelves, there is not that same deterioration from the atmospheric conditions. The cloth does not seem to get brittle, and does not tear, and the covers, the sides, do not seem to leave the body of the book.

The CHAIRMAN. How long, according to your investigations, will a good cloth binding last, where the book remains on the shelves, and is not subjected to very great use?

Mr. MEYER. I have had some specimens of cloth bindings in my hands that go back fifty or sixty years, and they seem still to be in good condition. I had hold of a volume this morning which was bound in 1845. You can tell the original publisher's binding on it, and that was in first-class condition; and others dating all the way from that period up to the present time.

The CHAIRMAN. Have you any sheep that is in good condition after that length of time?

Mr. MEYER. Yes, sir.

The CHAIRMAN. So that it depends mainly upon the quality of the original material?

Mr. MEYER. Yes; it depends largely on the quality of the original material, and it seems to be the opinion among those who use materials for binding that the recently manufactured leather is much poorer than the old leather. I believe the processes have changed. They are using more chemicals and less mechanical manipulation, and the result is that the texture of the leather is not as good, and it does not have the same resisting powers as the older leather had. There has been a very extensive investigation of this question made on the part of a committee of the Society of Arts in England, and they report, giving that date as near as they can determine it, which I mentioned before, 1860, as about the line of demarcation between the leather manufactured so that it would be durable, and leather manufactured so that it did not have the same lasting qualities.

The CHAIRMAN. So that the depreciation in quality of the leather is not peculiar to this country, but is general?

Mr. MEYER. It is quite general all over the world, wherever leather is used for binding.

The CHAIRMAN. What has been the result of your investigations, then, as to the leather used for binding since 1860, as to its durability as compared with good cloth; which is the most durable?

Mr. MEYER. I should say that cloth was decidedly the most durable.

(Witness: Meyer.)

The CHAIRMAN. Did this society you spoke of reach any conclusion with reference to the durability of the two bindings, or did they not discuss that question?

Mr. MEYER. They discussed only leather, and they spoke of the very poor quality. They laid special stress on the very poor quality of the recent specimens of sheep and calf.

The CHAIRMAN. That have been in use since 1860?

Mr. MEYER. Yes.

The CHAIRMAN. And did it appear whether the quality had deteriorated recently; was that deterioration practically incident to 1860 and from that on?

Mr. MEYER. I do not recall that, but I judge that all the leather that has been produced since 1860; that is, the most of it. There are a few firms, a few localities, that produce good leather, but on the whole all the leather has deteriorated pretty much in general since that time.

The CHAIRMAN. How about buckram as a binding?

Mr. MEYER. I consider it very good.

The CHAIRMAN. Is it equal to or superior to cloth?

Mr. MEYER. I should say that it was one of the best kinds of cloth for binding books.

The CHAIRMAN. It is a cloth?

Mr. MEYER. It is simply a variety of cloth.

The CHAIRMAN. What other kinds of binding are there that are generally used, if any, besides leather, law sheep, and cloth?

Mr. MEYER. They use calf and morocco and cow skin.

The CHAIRMAN. Those are expensive?

Mr. MEYER. More expensive. The cow skin is the cheapest of those that I have named, and that is quite durable, far superior to the sheep or calf.

The CHAIRMAN. Those bindings are used, as a rule, with the better or more choice editions?

Mr. MEYER. Yes.

The CHAIRMAN. But in editions for popular or common use, those bindings are confined largely to sheep and cloth?

Mr. MEYER. No, sir; to cloth now.

The CHAIRMAN. To cloth now?

Mr. MEYER. Yes; I do not think they use any sheep at all in the Library. They use a cow skin that is left yellow, its natural color, to resemble sheep as far as possible; but cloth, either duck or buckram, is preferred.

The CHAIRMAN. You are speaking now of the Library of Congress?

Mr. MEYER. Yes.

The CHAIRMAN. How long has it been since you have gone from law sheep to cloth?

Mr. MEYER. That I am not prepared to say. I was not connected with the Library when the change was made.

The CHAIRMAN. But that is the rule there now?

Mr. MEYER. Yes.

The CHAIRMAN. What about the cloth? You have spoken about the cloth and the law sheep with reference to the question of deterioration by the weather or atmospheric conditions. Now, what about the deterioration of the respective bindings when you come to the

(Witnesses: Meyer, Zappone.)

use and handling of the books, and as to their capacity to stand wear, under those circumstances; which is superior, the cloth or the sheep, or is there any distinction between the two in that respect?

Mr. MEYER. I think the cloth is superior.

The CHAIRMAN. Even in that respect?

Mr. MEYER. Yes; the sheep has a tendency to fray. A little corner or sharp instrument will raze the surface a little, and it will begin to tear from that point.

The CHAIRMAN. Then I understand that it is your judgment that the cloth binding is superior, from the point of view of wear and durability, to the sheep binding?

Mr. MEYER. Yes.

The CHAIRMAN. That is, a book is worth more bound in cloth than in sheep.

Mr. MEYER. Yes. For my own part I should not care to buy a book bound in sheep, if I could avoid it. I feel quite certain that my cloth-bound books will last my lifetime, whereas the leather bindings, excepting real morocco, are all crumbling to pieces.

The CHAIRMAN. Do you know anything about the difference in cost?

Mr. MEYER. The cost of the actual cloth required to cover a book is, I believe, a little less than that of the leather. The manipulation of the leather is a little more expensive. So that on the whole the leather would be more expensive than the cloth. Binders have a tendency to use more careful methods when using leather. It seems to be a tradition of the trade. But if they are cautioned, and the specification is drawn so as to include that, there ought to be no difficulty.

The CHAIRMAN. That is, if you get the same quality of workmanship the cloth binding is superior, from your point of view, to the sheep binding?

Mr. MEYER. Yes, sir.

The CHAIRMAN. Is there anything more you gentlemen think of?

Mr. SAMUEL. Nothing.

Mr. ZAPPONE. No, sir; nothing.

The CHAIRMAN. We are very greatly obliged to you.

OFFICE OF THE SECRETARY.

JANUARY 5, 1907.

(Part of testimony given on above date before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF SYLVESTER R. BURCH, ESQ., CHIEF CLERK OF THE DEPARTMENT OF AGRICULTURE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. What is your position, please?

Mr. BURCH. Chief clerk of the Department of Agriculture.

The CHAIRMAN. What are your duties, generally speaking?

Mr. BURCH. My duties are somewhat varied. I am the administrative officer of the Secretary and responsible for the enforcement of all rules and regulations of the Department; have general supervision of the personnel of the Department, and issue all special and general orders. I have supervision of the watchmen and messenger force, the file room, the distribution of the Secretary's mail, the telephone and telegraph office, the engineers and firemen, the chief of supply division, and the various offices that come under the Secretary, including expenditures made from the contingent fund. I am also custodian of the buildings.

The CHAIRMAN. In other words, the general Department?

Mr. BURCH. The general Department.

The CHAIRMAN. As distinguished from particular bureaus? Do I get that right?

Mr. BURCH. Yes. I have charge of the annual leaves of absence—the sick leaves, the leaves of absence of people without pay—and approve requests for the purchase of supplies from all the small bureaus, and am chairman of the committees on the award of contracts under informal bids and the sale of condemned property; in fact, all business transactions of the Secretary's office.

The CHAIRMAN. Do you have to do with the disbursement of the funds that relate to the Department generally?

Mr. BURCH. No; nothing, except that I have supervision of the contingent fund. That comes under my jurisdiction.

The CHAIRMAN. Do you have any control over the question of fixing the compensation of the employees of the Department?

Mr. BURCH. No, sir.

Mr. SAMUEL. Is the compensation of the various employees fixed by law?

Mr. BURCH. Yes, sir; almost all are statutory employees now in the Secretary's office, except a very few paid from the "emergency fund."

The CHAIRMAN. If I understand it correctly, you are familiar with the services performed by and the duties of the men who would be included in the list of expenditures on pages 3, 4, and 5?

Mr. BURCH. Yes, sir,

(Witnesses: Burch, Zappone.)

The CHAIRMAN. As to the balance of the expenditures, they are grouped and classified under the heads of the various bureaus?

Mr. BURCH. Yes, sir.

The CHAIRMAN. With which you would not be personally familiar?

Mr. BURCH. No, sir.

The CHAIRMAN. Do I get correctly the scope of your employment and your knowledge of the affairs of the Department?

Mr. BURCH. I think so.

The CHAIRMAN. Is it your understanding that the compensation of all the officers referred to on these pages is fixed in detail by the appropriation bill?

Mr. BURCH. Not all. The Secretary is given \$10,000 for emergency employments and for rents not otherwise provided for.

The CHAIRMAN. That is, \$10,000 relating to the office of the Secretary for emergency purposes?

Mr. BURCH. Yes, sir.

The CHAIRMAN. The total expenditures are \$110,320?

Mr. BURCH. Yes, sir.

The CHAIRMAN. And out of that he has the sum of \$10,000 for a contingent fund for general salary purposes?

Mr. BURCH. For salary, and all other purposes for emergency work, including rents.

The CHAIRMAN. That includes not only salaries, but expenses?

Mr. BURCH. Yes, sir; rents, etc.

The CHAIRMAN. All expenditures.

Mr. ZAPPONE. May I read to you an extract from the law?

The CHAIRMAN. Yes.

Mr. ZAPPONE (reading): * * * "For extra laborers, emergency employments, and pay of rents, \$10,000." That is the lump fund to which the chief clerk refers.

Mr. FLOOD. Is that in addition to the \$110,320?

Mr. ZAPPONE. No; it is included in it.

The CHAIRMAN. What page of the appropriation bill do you find that on?

Mr. ZAPPONE. That is on page 2, just at the close of it.

The CHAIRMAN. Then, with the exception of the lump sum to which you have referred, the salaries for the Secretary's office are specifically fixed by Congress itself?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. How does the sum of \$110,320 compare with the appropriations that have been made for that purpose during the last half dozen years? Of course this is only approximate.

Mr. BURCH. Yes.

The CHAIRMAN. What we want to get at is whether there has been much increase, or whether it is substantially the same?

Mr. BURCH. It is a slight increase, but I can not say just how much.

The CHAIRMAN. I suppose the scope of the work of the Department has been increasing gradually all the time?

Mr. BURCH. Yes; very materially.

The CHAIRMAN. Will you give us—of course it can be done easily enough by a little computation—a list, for the last ten years, say, of the appropriations made for the office of the Secretary, so that we can have the figures in the record for the purposes of comparison?

(Witnesses: Burch, Zappone.)

Mr. BURCH. For the last ten years; yes. Just make a note of that please, Mr. Zappone.

Mr. ZAPPONE. I have that all compiled in the annual report of the Division of Accounts for 1906.

The CHAIRMAN. Oh, you have?

Mr. ZAPPONE. Yes, sir; from 1839 to date. The report shows all the appropriations made for the Department of Agriculture.

The following is a summary of these appropriations, and will show the wonderful growth of the Department, due to the urgent and continual demands of agricultural and other public interests:

Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.	Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
1839.....	\$1,000.00	\$1,000.00		1874.....	\$257,690.00	\$233,765.78	\$23,924.22
1840.....				1875.....	337,380.00	321,079.83	16,300.17
1841.....				1876.....	249,120.00	198,843.64	50,276.36
1842.....	1,000.00	1,000.00		1877.....	194,686.96	188,236.19	6,450.77
1843.....				1878.....	198,640.00	197,654.94	1,005.06
1844.....	2,000.00	2,000.00		1879.....	206,400.00	206,360.00	40.00
1845.....	2,000.00	2,000.00		1880.....	199,500.00	198,361.72	1,138.28
1846.....	3,000.00	3,000.00		1881.....	275,460.31	267,608.84	b 7,851.47
1847.....	3,000.00	3,000.00		1882.....	363,011.05	354,482.39	c 8,528.66
1848.....	4,500.00	4,500.00		1883.....	456,396.11	438,941.72	d 17,454.39
1849.....	3,500.00	3,500.00		1884.....	a 416,641.13	413,618.09	3,023.04
1850.....	5,500.00	5,500.00		1885.....	a 655,930.25	558,934.89	e 96,995.36
1851.....	5,500.00	5,500.00		1886.....	a 677,973.22	519,196.11	158,777.11
1852.....	5,000.00	5,000.00		1887.....	a 657,641.81	628,287.14	29,354.67
1853.....	5,000.00	5,000.00		1888 f.....	1,027,219.06	1,011,282.62	15,936.44
1854.....	10,000.00	10,000.00		1889.....	a 1,134,480.60	1,033,590.22	g 100,890.38
1855.....	a 50,000.00	50,000.00		1890.....	a 1,170,139.11	971,823.62	h 198,315.49
1856.....	30,000.00	30,000.00		1891.....	a 1,372,019.21	1,266,277.36	105,741.85
1857.....	75,000.00	75,000.00		1892.....	a 2,303,655.75	2,253,262.29	50,393.46
1858.....	63,500.00	63,157.25	\$342.75	1893.....	2,540,060.72	2,355,430.25	184,630.47
1859.....	60,000.00	60,000.00		1894.....	2,603,855.58	1,977,469.28	i 626,386.30
1860.....	40,000.00	40,000.00		1895.....	2,506,915.00	2,021,030.38	485,884.62
1861.....	60,000.00	60,000.00		1896.....	2,584,013.22	2,094,916.42	489,096.80
1862.....	64,000.00	63,704.21	295.79	1897.....	2,448,763.53	2,348,512.98	100,250.55
1863.....	80,000.00	80,000.00		1898.....	2,467,902.00	2,425,510.44	42,391.56
1864.....	199,770.00	189,270.00	10,500.00	1899.....	2,829,702.00	2,827,795.65	28,899.27
1865.....	112,304.05	112,196.55	107.50	1900.....	3,066,022.00	2,947,603.42	58,418.58
1866.....	167,787.82	167,787.82		1901.....	3,304,265.97	3,239,137.39	65,128.57
1867.....	199,100.00	199,100.00		1902.....	3,922,780.51	3,902,675.79	20,104.72
1868.....	279,020.00	277,094.34	1,925.66	1903.....	6,015,846.00	4,734,230.84	281,615.16
1869.....	172,593.00	172,793.00		1904.....	5,025,024.01	4,969,311.64	55,712.37
1870.....	156,440.00	151,596.93	4,843.07	1905 j.....	6,094,540.00	5,881,939.57	215,600.43
1871.....	a 188,180.00	186,876.81	1,303.19	1906 j.....	7,175,690.00	6,000,327.85	1,175,362.15
1872.....	197,070.00	195,977.25	1,092.75	Total.....	k 65,438,391.49	l 60,110,836.13	m 5,415,652.31
1873.....	202,440.00	201,321.22	1,118.78				

^a Including deficiency appropriation.

^b Includes \$1,646.45 of the appropriation for reclamation of arid lands, carried to the fiscal year 1882.

^c Includes \$85.26 of the appropriation for reclamation of arid lands and \$3,530.85 of the appropriation for experiments in the manufacture of sugar, carried to the fiscal year 1883.

^d Includes \$7,656.13 of the appropriation for reclamation of arid lands, carried to the fiscal year 1884.

^e Includes \$93,192.27 of the appropriation for Bureau of Animal Industry and \$2,970.82 of the appropriation for quarantine stations, carried to the fiscal year 1886.

^f For the fiscal year 1888 including the sum of \$8,000 appropriated for deficiencies in the appropriation for experiments in the manufacture of sugar for the fiscal years 1887 and 1888, of which \$7,927.50 was disbursed and \$72.50 remained unexpended.

^g Includes \$12,923.25 of the appropriation for botanical investigations and \$58,364.76 of the appropriation for experiments in the manufacture of sugar, carried to the fiscal year 1890.

^h Includes \$188,974.69 of the appropriation for Bureau of Animal Industry, carried to the fiscal year 1891.

ⁱ Includes \$7,891.94 for statutory salaries of the year 1894.

^j For the years 1905 and 1906 the figures given represent payments made to close of June 30, 1906, the accounts for those years being still open at the date of this revision.

^k This total is the amount actually appropriated for the various fiscal years, with the exception of \$37,604.70 appropriated July 13, 1868, to cover a number of expenditures made in previous years. It does not include an aggregate sum of \$369,344.48 reappropriated from the unexpended balances of several fiscal years. (See foregoing notes.)

^l Does not include \$37,604.70 which was disbursed during several years, and covered by an appropriation of like amount, made July 13, 1868. (See note 5.)

^m Does not include an aggregate sum of \$369,344.48 reappropriated from the unexpended balances of several fiscal years. (See foregoing notes.)

(Witnesses: Zappone, Burch.)

MR. ZAPPONE. Mr. Chairman, as requested, I also submit the following statement of salaries for the office of the Secretary of Agriculture, including salaries for extra labor, etc., for ten years—that is, from the fiscal year 1897 to the fiscal year 1906, both inclusive:

Fiscal year—		Fiscal year—	
1897-----	\$94,340	1902-----	\$79,030
1898-----	87,100	1903-----	74,410
1899-----	84,300	1904-----	74,660
1900-----	88,150	1905-----	78,860
1901-----	70,770	1906-----	110,320

You will note that there is an increase of \$31,460 in the fiscal year 1906, the year now under discussion, over the preceding fiscal year 1905. This is due principally to the transfer to the Secretary's roll of a number of mechanics and low-salaried clerks who had previously been paid on the lump-fund rolls of the different bureaus and detailed to his office. At the suggestion of the Committee on Agriculture, all clerks detailed to other bureaus and offices were transferred to the appropriation of that bureau or office. In addition the emergency fund, which had been \$1,000 the previous fiscal year, was increased to \$10,000, as the need for the employment of additional mechanics for emergency work of a temporary character had largely increased.

During prior years—at least the majority of them—you will find that the appropriations decreased rather than increased.

THE CHAIRMAN. What are the duties of the Assistant Secretary of Agriculture? That is, what work does he have to perform independent of the duties that you are discharging, in a general way?

MR. BURCH. He has various duties. He acts as Secretary, of course, in the absence of the Secretary, and has scientific work assigned him by the Secretary. That does not come under my province at all.

THE CHAIRMAN. Do any of the duties discharged by the Assistant Secretary run on parallel lines with the work that is allotted to you and that you have to do?

MR. BURCH. None whatever.

MR. ZAPPONE. Mr. Chairman, I think the second item in the appropriation act of this Department for 1906 prescribes the duties of the Assistant Secretary of Agriculture. They are such duties as may be turned over to him by the Secretary. No, I am mistaken; it is in the appropriation act of 1907 that his duties were fixed.

THE CHAIRMAN. This investigation relates to 1906, so that would not be very illuminative for us. You may state, in a general way, what duties he does discharge. Of course we understand that in the absence of the Secretary he acts as Secretary.

MR. BURCH. Yes.

THE CHAIRMAN. And during that period he discharges, in a general way, all the duties that are discharged by the Secretary himself?

MR. BURCH. Yes. I think, Mr. Chairman, that you had better call the Assistant Secretary on this point.

THE CHAIRMAN. Very well, then. He will be called if necessary.

MR. BURCH. For this reason: It is scientific work, and I am not connected with the scientific branch of the service.

THE CHAIRMAN. I see—well, that covers it.

MR. BURCH. My duties are administrative.

THE CHAIRMAN. The statement you have already made covers practically all the knowledge that you have in that respect?

(Witness: Burch.)

Mr. BURCH. Yes, sir.

The CHAIRMAN. The solicitor for the Department is an attorney, I suppose?

Mr. BURCH. Yes, sir.

The CHAIRMAN. His salary is \$2,500 a year, and expenses, \$424.41. Will you explain to the committee, in a general way, what circumstances gave rise to the incurring of expenses on the part of the solicitor?

Mr. BURCH. He is sent out by the Secretary to investigate any violations of law on the part of the railroads; for instance, in regard to the transportation of live stock, and many other things where there is a violation of the law pertaining to this Department.

The CHAIRMAN. Then the solicitor is not necessarily confined to the Department itself in the discharge of his duties? That is, his work requires him to go outside?

Mr. BURCH. It is altogether connected with our Department.

The CHAIRMAN. Yes; it is connected with the Department, but a good deal of his service has been rendered outside?

Mr. BURCH. Outside; yes. He furnishes information, gathers information, for the Department of Justice in the prosecution of violators of the law.

The CHAIRMAN. Is that work supplemental to the investigation of the Department of Justice? Please tell us whether the solicitor for your Department originates these investigations and then turns them over to the Department of Justice.

Mr. BURCH. The violations of law are reported to the Department by people who are connected with the Department out in the field. They are turned over to the solicitor, who investigates the cases, classifies the evidence, and turns the case over to the Department of Justice, and then in many cases assists the United States attorneys in the trial of the cases.

The CHAIRMAN. They are reported to the Department of Agriculture?

Mr. BURCH. They are reported to the Department of Agriculture, and then the solicitor is sent to investigate and find out what they are and how much there is to them, of course.

The CHAIRMAN. Yes. Then, at what stage of the proceedings is the investigation turned over to the Department of Justice?

Mr. BURCH. Well, Mr. Chairman, I think you will have to have the solicitor here to give you that information, because that is outside of my knowledge.

The CHAIRMAN. Very well. What I wanted to get at is whether there is any probable duplication of work between the Department of Justice and the Department of Agriculture.

Mr. BURCH. I think not.

The CHAIRMAN. That you would not have personal knowledge of?

Mr. BURCH. Of course, these proceedings are brought in the courts where the violations may occur.

The CHAIRMAN. Yes; but the Department of Agriculture does not—

Mr. BURCH. And the attention of the Department of Justice is called to the violations when the cases are brought.

The CHAIRMAN (continuing). But the Department of Agriculture does not actually prosecute anybody for violation of law, does it?

(Witness: Burch.)

Mr. BURCH. No; they do not prosecute, but they furnish the information to the Department of Justice, and in many cases the solicitor assists the United States attorneys in the trials.

The CHAIRMAN. Do we understand that it is the practice in the Department of Agriculture, when their attention is called to a violation of the law within the scope of the operations of that Department, to make the preliminary investigation through the solicitor of the Department of Agriculture, and that then, at some stage of the proceedings, if it results in a prosecution it is turned over to the Department of Justice?

Mr. BURCH. The Department of Justice has the supervision of the cases, as I understand it. The solicitor, of course, does many other things. He drafts and approves contracts and leases and all legal papers to which the Department is a party.

The CHAIRMAN. That is, the solicitor of the Department of Agriculture discharges other duties in the Department?

Mr. BURCH. Oh, yes. He goes out on the road very often. He is with the Secretary now, investigating this pure-food business, in regard to distillers of whisky, etc.

The CHAIRMAN. Is he the only legal adviser that the Department has?

Mr. BURCH. Yes.

The CHAIRMAN. How much of his time is necessarily spent outside of the Department? I am speaking now of the Department proper, where his office is located, here in Washington.

Mr. BURCH. He makes various trips. Probably a couple of months during each year, I should say.

The CHAIRMAN. And it is during that period that this item of expenses would be incurred?

Mr. BURCH. Yes, sir.

The CHAIRMAN. What is the practice of the Department in connection with the incurring of expenses on the part of the Secretary or the Assistant Secretary or the solicitor as to their payment—the circumstances under which they are paid—the method you adopt?

Mr. BURCH. They have an authorization—the Secretary does not, of course, but the Assistant Secretary, the solicitor, and all others have an authorization not to exceed a certain amount, and the amount of payment to them is governed by the rules and regulations of the Department.

The CHAIRMAN. Do they present vouchers from time to time?

Mr. BURCH. Yes, sir.

The CHAIRMAN. Or do they wait until all the expenses have been incurred and then present vouchers in the aggregate?

Mr. BURCH. They present them upon return from each trip.

The CHAIRMAN. Who supervises that? Is there anybody in the Department who passes on the vouchers?

Mr. BURCH. Oh, yes.

The CHAIRMAN. Who does?

Mr. BURCH. It is done in the disbursing office.

The CHAIRMAN. Oh, yes—Mr. Zappone's department. So far as you know, in relation to the matters that you have knowledge of, wherever expenses are incurred through traveling away from Washington—and I suppose that is the only instance where expenses are incurred, is it not?

(Witnesses: Burch, Moore.)

Mr. BURCH. Yes, sir.

The CHAIRMAN (continuing). Wherever expenses of that character are incurred, the vouchers, as I understand you, are submitted at the time of the incurring of the expense, passed through the disbursing department, and approved?

Mr. BURCH. Immediately on return.

The CHAIRMAN. And then from time to time paid? Is that the practice?

Mr. BURCH. Yes, sir; immediately on return.

Professor MOORE. Mr. Chairman, I think I can enlighten you just a little there, if you will permit me.

The CHAIRMAN. Certainly.

Professor MOORE. In regard to the duties of Mr. McCabe, to give you a concrete example: When there is a violation of law, for instance, relating to the Weather Bureau, I investigate it, and usually then ask the solicitor for an opinion whether it will justify us in going ahead and getting evidence to be carried over to the Department of Justice, and on his opinion I start our inspectors to working the case up. Then I turn it over to him, and he gets the case ready for the Department of Justice, to whom it is referred by the Secretary. Then he will assist the Department of Justice, as our representative, in giving further information, and sometimes assists in trying the cases, so that between our Department and the Department of Justice they prosecute the cases.

The CHAIRMAN. Then, if I understand you correctly, the solicitor makes the preliminary investigations in case of alleged violations of law?

Professor MOORE. Precisely.

The CHAIRMAN. That comes within the scope of the Department of Agriculture?

Professor MOORE. Yes.

The CHAIRMAN. And then, after having made a preliminary examination, which may perhaps involve a trip away from Washington and return—

Professor MOORE. Yes.

The CHAIRMAN. If, after having made it, his judgment is that a condition of facts exist that would justify prosecutions, he turns the matter over to the Department of Justice?

Professor MOORE. Precisely.

The CHAIRMAN. Does he give to the Department of Justice his legal advice in connection with the construction of law?

Professor MOORE. I think not at all, unless requested.

The CHAIRMAN. That is a matter for the Department of Justice?

Professor MOORE. Yes, sir.

The CHAIRMAN. So that practically all that Mr. McCabe has to do is to work out details of this character?

Professor MOORE. Yes; and he advises the various bureau chiefs with regard to all points of law. For instance, take the Weather Bureau contracts—we build a great many buildings a year. In connection with the various Weather Bureau stations, something comes up in regard to a contract, some dispute between the contractor and our local official; and I frequently call on Mr. McCabe for advice as to the legal aspect of the case, so as to guide me in my official acts as Chief of the Bureau; and I understand that the other bureau

(Witnesses: Moore, Burch, Melvin, Zappone.)

chiefs call upon him. He is the legal adviser of the various bureau chiefs; keeping them straight on points of law.

The CHAIRMAN. How long have you had a solicitor?

Professor MOORE. Three or four years.

Mr. BURCH. Three years, I think. We had a man acting in his stead some time ago.

Professor MOORE. A sort of a law clerk.

Mr. BURCH. That drew contracts and did various duties.

Professor MOORE. There was great need for this officer.

The CHAIRMAN. Was it not practicable to get along with a law clerk?

Mr. BURCH. It might have been at that time.

The CHAIRMAN. I suppose the law clerk received less salary?

Professor MOORE. Well, I do not believe he was even a regular graduate in law.

Mr. BURCH. He was not a graduate.

Professor MOORE. He was not competent for the work.

Doctor MELVIN. He was simply fairly well read in law, without being a lawyer.

Mr. FLOOD. I do not suppose his salary was very much smaller than this salary, at any rate?

Professor MOORE. His salary was \$2,000.

Mr. ZAPPONE. The salary of the law clerk was \$2,000.

Mr. FLOOD. This is only \$2,500.

Mr. ZAPPONE. Yes; Mr. McCabe was made solicitor at \$2,500.

The CHAIRMAN. I will put this general question: I have an impression that it has become more or less a practice, not necessarily in this Department, but in a great many of the Departments, to change the position that the man occupies, and therefore indirectly increase the salary attached to the position. Is there any practice like that in this Department? I am not intimating that it is not proper or that it is improper.

Mr. ZAPPONE. There certainly has not been in this case. Had he remained even as a law clerk he would have been earning \$2,500 per annum now.

The CHAIRMAN. But is there any general practice of that kind in the Department?

Mr. ZAPPONE. No; not in the Department of Agriculture. May I read here the duties of the solicitor as given in the Congressional Directory?

The CHAIRMAN. Yes.

Mr. ZAPPONE (reading):

The solicitor acts as the legal adviser of the Secretary, and has charge of the preparation and supervision of all legal papers to which the Department is a party, and of all communications to the Department of Justice and to the various officers thereof, including United States attorneys. He examines and approves, in advance of issue, all orders and regulations promulgated by the Secretary under statutory authority. He represents the Department in all legal proceedings arising under the laws intrusted to the Department for execution, and prosecutes applications for patents by employees of the Department. His duties are performed under the immediate supervision of the Secretary.

A great many of our employees get out patents on apparatus pertaining to scientific subjects, many of them being most useful to the Department.

The CHAIRMAN. And for whose benefit do they get them out?

(Witnesses: Zappone, Burch.)

Mr. ZAPPONE. They must get them out for the benefit of the Government, in accordance with the instructions of the Secretary, which are as follows:

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., May 8, 1905.

To the Officers and Employees of the Department of Agriculture:

Hereafter when any employee of the Department makes any new and useful discovery or invention of any machine, device, or process connected with the work of the Department, through the expenditure of Government time and Government money, you are directed to cause a patent to be applied for on the said discovery or invention, through the law officer of the Department. The patent will be taken out in the name of the inventor, without any expense to him, and will allow to any citizen of the United States the use of the patented article or process without payments of royalty.

All employees of this Department are prohibited from patenting any device or process or discovery connected with the work of the Department except in the manner above described.

JAMES WILSON,
Secretary of Agriculture.

The CHAIRMAN. What was that you read from in regard to the duties of the solicitor?

Mr. ZAPPONE. I read from the Congressional Directory, the part prescribing the duties of the various officials of the different departments; those who are secretaries, chiefs of bureaus, chief clerks, etc.

The CHAIRMAN. Yes.

Mr. ZAPPONE. The solicitor is attached to the Secretary's office and works under the Secretary's personal direction. He investigates all the legal questions that arise, and when he finds that a matter requires action by the Department of Justice, he submits all the facts in the case to the Secretary of Agriculture for reference to the Department of Justice for further action; he then assists in the classification of the evidence, and upon request in the trial of the cases.

The CHAIRMAN. Yes; that was the statement of Professor Moore.

Mr. ZAPPONE. He calls no witnesses nor does he prosecute any case through the courts, except when requested by the Department of Justice. That is all done by the Department of Justice.

The CHAIRMAN. He simply makes the preliminary investigation?

Mr. ZAPPONE. He makes the preliminary investigation.

The CHAIRMAN. Now, we have here Mr. Jasper Wilson and Mr. Reese, one of whom is private secretary to the Secretary of Agriculture and the other is stenographer and executive clerk to the Secretary of Agriculture.

Mr. BURCH. Yes, sir.

The CHAIRMAN. One at a salary of \$2,500 a year and the other at a salary of \$2,000 a year. Will you explain to the committee briefly what the duties of the two men are?

Mr. BURCH. The private secretary to the Secretary is the one who looks after his personal affairs, has charge of the anteroom, or the room next to the Secretary, introduces people to the Secretary, holds them in check when there are many in the anteroom to see the Secretary, and performs various other duties that the Secretary may direct.

The CHAIRMAN. How about the stenographer and executive clerk?

Mr. BURCH. He is his stenographer and takes all of his dictation.

The CHAIRMAN. Does he do anything else except take dictation?

(Witnesses: Burch, Zappone, Moore.)

Mr. BURCH. Oh, yes; of course he writes communications for the signature of the Secretary, and looks over his mail, and performs various other duties of that character.

The CHAIRMAN. Then he is really simply a stenographer?

Mr. BURCH. A stenographer and typewriter.

The CHAIRMAN. Yes; a stenographer and typewriter.

Mr. ZAPPONE. Mr. Chairman, may I interrupt there, with Colonel Burch's permission? Mr. Reese is more than a stenographer. He not only indicates action to many of the different bureaus and divisions on important papers, action that is suggested by the Secretary or by the Secretary's policy, but oftentimes he initiates, directs, or suggests action. He is a most valuable executive man in addition to being a stenographer. You might almost say that he is an adviser relieving the Secretary of much routine work. He reports all hearings held by the Secretary in carrying out the meat, pure-food, and other laws.

The CHAIRMAN. Does the private secretary do any of that kind of work?

Mr. ZAPPONE. The private secretary does some of it; yes, sir. His duties, however, are confined more exclusively to confidential work and the receiving of the many committees and individuals calling upon the Secretary, particularly at the present time, in regard to the pure-food and drug law and the meat-inspection law. There is a constant stream of people passing into the Secretary's office all day, many of whom can be deflected from the Secretary, their business being such that it can be transacted with the chiefs of the different bureaus and divisions. The private secretary to the Secretary must have experience and extensive knowledge of the entire workings of the Department in order not only to answer the inquiries of the Secretary, but to relieve him of that great pressure resulting from the visits of employees of the Department and of outsiders.

The CHAIRMAN. Returning to Mr. Reese. Your suggestion is that he has to have more than stenographic ability; that is, he has to be a man of high capacity?

Mr. ZAPPONE. Yes; he must be both a stenographer and an executive clerk to the Secretary. The heads of all Departments have such officials to assist them.

The CHAIRMAN. What do you understand that a good, fair, stenographer, I will say, is able to earn or receive in ordinary private employment?

Mr. ZAPPONE. In ordinary private employment?

The CHAIRMAN. Yes.

Mr. ZAPPONE. You can get them at all prices, sir; from \$600 a year up, according to their ability.

Mr. FLOOD. This man takes the Secretary's dictation, does he?

Mr. ZAPPONE. He does. In the case of stenographers receiving about \$600, usually that is all they are worth. They can only do the most ordinary amanuensis work, and very poor work at that.

Professor MOORE. This man is capable of reporting a convention.

The CHAIRMAN. Oh, I am not criticising this man at all; but as we go through, I shall want to inquire in relation to these matters. Of course I want to know as we go along through, as a rule, whether the employees of this Department are receiving as much as men of

(Witnesses: Burch, Moore, Zappone.)

equal caliber and capacity would be likely to receive in private employment.

Mr. FLOOD. He certainly receives too much for a stenographer.

Mr. BURCH. But he is really an executive officer. The Secretary indicates to him just the outline of a letter and he prepares it. He is a man of ability. All the Secretary has to do is to indicate his wishes.

Mr. FLOOD. He does not have to dictate the letter?

Mr. BURCH. He does not have to dictate the letter at all. He answers more than half the correspondence, I should judge, without having anything more than just an indication of what the Secretary desires.

Professor MOORE. I have frequently been acting secretary; Mr. Chairman; and this man is, I have found, an unusually valuable man in the office. As Colonel Burch says, I can give him a paper with a word or two and he will know what action is necessary, and will get the letter ready for signature. Then, in the case of the many hundreds of papers coming daily to the Secretary's desk, to be signed by the Secretary, it is difficult for him to read them all. This man runs all through them, and if there is anything there that the Secretary ought to see before he signs it, he calls his attention to it. As he is so well informed in regard to the work of the Department he is something more than a mere secretary. I used to sign, day after day, several hundred papers, simply because I knew that this man, Mr. Reese, had gone through them, and if there was anything wrong with them I knew that he would bring it to my attention. I simply did not have time to read them.

Mr. SAMUEL. That is an established salary?

Mr. BURCH. A statutory salary.

The CHAIRMAN. Yes. Well, I do not understand that the salaries are statutory, except as they are fixed in the appropriation bill from time to time.

Mr. SAMUEL. Yes; but that makes them, for the time being, statutory.

The CHAIRMAN. How long has that salary stood at \$2,000, in that instance?

Mr. ZAPPONE. I think during the past three years, sir. May I add just another remark?

The CHAIRMAN. Yes.

Mr. ZAPPONE. It is a little irrelevant, and is something that for the present is confidential, that perhaps I should not disclose. I am a member of one of the subcommittees of the Keep Commission, the committee on personnel, and this very matter of comparison of the salaries received in the Government service with those paid in the commercial world has been a subject of considerable discussion and consideration by that committee. Stating the results in a general way, I will say that it was found that the lower-salaried positions, such as watchmen, messengers, and charwomen, were paid more in the Government service than in the commercial world, but the positions of responsibility and trust and positions of a supervisory character requiring executive ability were all underpaid by the Government—that is, paid less under the Government than in the commercial world.

(Witnesses: Zappone, Burch.)

The CHAIRMAN. Would you go so far as to say that that covers every single office?

Mr. ZAPPONE. Not every single office.

The CHAIRMAN. But as a rule? You mean by that as a rule?

Mr. ZAPPONE. I mean positions requiring supervisory and executive capacity, as a general rule, and this fact was disclosed by the correspondence received from large corporations and commercial houses over the country and from the mayors of quite a number of the principal cities.

Now, stenographers are rated at all prices in the Government service, from \$720 up to \$2,500, the latter being men who also act as executive clerks. I will also say that it is a very difficult matter to get, through the Civil Service Commission, a stenographer for less than \$1,000. I have had experience, and I think Professor Moore and Doctor Melvin would bear me out in this statement: It is most difficult to get a stenographer and typewriter at anything less than \$1,000 through the Civil Service Commission. They will not accept the positions. That shows that they must be paid all of that in the commercial world if they are any good. Of course you can get a lot of women at \$40 or \$50 a month, but their work is very poor. It would not answer for the Government service.

The CHAIRMAN. It rather seems to me that Mr. Reese performs more responsible duties and renders more efficient service than Mr. Wilson does, from the description of the duties of the two men.

Mr. ZAPPONE. Their duties are entirely different and can not be compared. Mr. Wilson must have excellent judgment, he must enjoy the complete confidence of the Secretary, and he must be skilled in handling the people who call on the Secretary. The duties of one are executive and the duties of the other confidential. The other Departments have similar positions.

Mr. FLOOD. He has to have tact to keep us from getting mad with the Secretary.

The CHAIRMAN. Well, that is perhaps an element that is entitled to weight. We are not fixing salaries, of course; I am simply making this inquiry as we go along, for the purpose of getting information. Now (unless there are some other questions on that point), we have here Mr. Price and Mr. Mowry. Mr. Price is the stenographer to the Assistant Secretary, and Mr. Mowry is the private secretary, Price getting \$1,400 and Mowry \$1,600. Are the duties of these two men substantially like the duties of the other two men, with the exception that they refer to the Assistant Secretary, while the others relate to the Secretary?

Mr. BURCH. Similar; yes, sir.

The CHAIRMAN. Are they equally responsible?

Mr. BURCH. No; Mr. Mowry has more responsible duties than Mr. Price, I think.

The CHAIRMAN. No. I mean have these two men, this stenographer and this private secretary, equally responsible duties to perform as the other stenographer and private secretary?

Mr. BURCH. Not as a rule. Whenever the Assistant Secretary is acting as Secretary, Mr. Reese is his stenographer.

The CHAIRMAN. I suppose, judging from the item of expenses, that the private secretary for the Assistant Secretary has to do more or less traveling. That is what I infer from this item.

(Witnesses: Burch, Zappone.)

Mr. BURCH. Yes; he has been with the Assistant Secretary on various trips.

The CHAIRMAN. Just for the purpose of illustration, I should like to inquire about this telegraph and telephone operator. Is there anything about a telegraph and telephone operator for the Department, to start with, that differentiates him from the ordinary telegraph and telephone operator, so far as the responsibility of the duties to be performed is concerned?

Mr. BURCH. They have to use judgment as to whether the messages are proper or not. The ordinary telegraph operator, when he is given a message, sends it; but in a Department—in our Department—especially in the case of the telephone operator, where charges are made, she has to differentiate between the private messages and those which are public.

The CHAIRMAN. Where charges are made, you say?

Mr. BURCH. Yes, sir; we are charged so much a message for the use of the telephone.

The CHAIRMAN. Oh, yes.

Mr. BURCH. And it is necessary to determine what is official and what is personal.

The CHAIRMAN. Yes. That is simply a question of differentiating between private and public employment or private and public service?

Mr. BURCH. Yes.

Mr. FLOOD. Is this operator a lady?

Mr. BURCH. Yes.

The CHAIRMAN. How about your telegraphers? The telegrapher does not write his messages, does he?

Mr. BURCH. He does not write his messages?

The CHAIRMAN. Yes.

Mr. BURCH. You mean for sending out?

The CHAIRMAN. Yes; I mean your telegraph operator. What is there about—

Mr. BURCH. It is the same person.

Mr. FLOOD. The same as the telephone operator?

Mr. BURCH. No; there are two. They are both telegraph operators.

The CHAIRMAN. Yes; there are two, one at \$1,400 and the other at \$1,200.

Mr. BURCH. Yes, sir.

Mr. FLOOD. But, I say, they both perform the same duties?

Mr. BURCH. Yes; they each perform the same duties.

The CHAIRMAN. Where are they; both in the same office?

Mr. BURCH. Yes; and then sometimes we have to have an assistant.

The CHAIRMAN. Sometimes you require three, on account of the volume of business being done?

Mr. BURCH. Yes, sir. Hundreds of telegrams are received and sent.

Mr. ZAPPONE. We have a large switchboard at the Department—similar to the one you have here at the Capitol.

The CHAIRMAN. You may be familiar with that, Mr. Zappone. What does a telegraph and telephone operator receive in responsible private employment?

Mr. ZAPPONE. From \$1,200 to \$1,400, I should say.

The CHAIRMAN. They do?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Then they would seem to be practically on a par with these?

Mr. ZAPPONE. Yes, sir; that is, good ones—just about the same.

Mr. SAMUEL. What is the difference in the services of the two? One gets \$1,200 and the other \$1,400.

Mr. ZAPPONE. Mrs. Guthridge, the one first named in the report, at \$1,400, is in charge of the office. There is a large switchboard in that office connected with 50 or 60 telephones, and you know how the buildings of the Department of Agriculture are located. They are spread all over that reservation. Then there is an indoor system of 160 phones also connected with this switchboard, which adds a great many calls. Mrs. Guthridge is constantly changing from switchboard to telegraph key all day long. The business has grown so that she can no longer do all the telephoning and the telegraphing, and it was necessary for Congress to provide an additional operator, at \$1,200. They alternate now. They are both competent to fill either position. The service would be very unsatisfactory if some one called on the telephone while she was at the telegraph key, and vice versa. The operators work together. During the meat-inspection and pure-food inquiries I think there were as many as three or four on duty, were there not, Colonel Burch?

Mr. BURCH. Yes; an extra one, too.

Professor MOORE. Mr. Chairman, I have trouble in getting similar employees to work at the Weather Bureau at \$1,200. I have gotten two or three through the Civil Service Commission at \$1,000, and they left unless we could put their salaries up to \$1,200 at least. I mean competent telegraph operators.

Mr. FLOOD. Why do you require them to perform the duties of both telegraph and telephone operators?

Professor MOORE. These people you are speaking of are telegraph operators and telephone operators, but their talent is mainly that of a telegraph operator.

Mr. ZAPPONE. Which makes them the more valuable, of course.

Professor MOORE. Yes; they do both duties. They attend to the switchboard of the telephone system while doing the work of a telegraph operator.

Mr. ZAPPONE. It is in the interest of economy.

Mr. FLOOD. Do you think it is a matter of economy to take a high-priced person and make him do low-priced work or lower-priced work?

Professor MOORE. Yes; I think that where the two duties come together like that it is so. You would have to have an operator there anyway, and there are intervals of time between the sending of messages in which they are able to handle the switchboard. At the Weather Bureau we do have a boy to attend to the switchboard, which is separated from the telegraph division, because our telegraphing is of such a large volume that we keep the telegraph operators busy all the time. We have a number of them there, but I have difficulty in getting competent operators at \$1,000. I have tried it, and they have invariably left us.

Mr. FLOOD. But how is it about telephone operators?

Mr. SAMUEL. But if those two alternate and do the same work, why do they not get the same salary?

Professor MOORE. One of them, the older employee, is in charge of the office.

Mr. BURCH. And of course we did not want to pay the other one \$1,400, so we got one at as low a salary as we could.

Professor MOORE. I might further answer that, if you will permit me, by saying that the time of these telegraph operators is not fully occupied in operating the instruments, and they have time to attend to the switchboard. It is absolutely necessary to have two there, because one can not be there all the time, and at times the work is such as to keep two on duty continuously. Their intervals are filled in by taking care of the switchboard.

The CHAIRMAN. I suppose the real fact about it is that two really furnish a surplus of energy for that purpose? That is, I do not suppose you continuously use two people there?

Mr. BURCH. Yes; constantly.

Mr. ZAPPONE. Mr. Chairman, at the present time there are actually three on duty. The business increased so on account of the meat-inspection and pure-food work that it became necessary to detail another clerk to that office; there really should be another place there.

The CHAIRMAN. I did not know but what there might be periods when you absolutely needed two, and could not get along without two, and then there might be a slack time when even one might not be employed.

Mr. BURCH. There is no time when they are not mostly employed.

Mr. ZAPPONE. If it is agreeable, Mr. Chairman, I would like to add that the telephone company reports by postal card every day the number of messages sent through their general exchange, and it is the duty of our telephone and telegraph operator in charge to check that up with the list she keeps of the messages sent, and on that later she verifies the account that is received from the telephone company. I send the account to her for that purpose, and she checks up every message that has been charged up against the Department and returns the account O. K.'ed for payment. It is the same way if any private messages are sent by employees of the Department. The operator keeps a separate record of these, which are paid for by the employees at the rate of 2½ cents a message, under an agreement with the telephone company.

The CHAIRMAN. How many telephone messages would it average a day, if you remember?

Mr. ZAPPONE. It will average 500 calls per day on the outside exchange system and 1,500 calls per day on the interior system.

Mr. FLOOD. What portion of their time is taken up with the telegraph instrument, and what portion with the telephone exchange?

Mr. ZAPPONE. I must refer you to Colonel Burch on that point, sir.

Mr. BURCH. There is one occupied nearly all the time at the telegraph.

Mr. FLOOD. And the other at the telephone?

Mr. BURCH. Yes; and frequently both of them are using the telegraph. They have received several hundred messages a day and sent as many recently; so that they are occupied constantly.

Mr. FLOOD. That was not the question I asked, sir. What proportion of their time is taken up with telegraph work and what part with the telephone work?

(Witnesses: Burch, Zappone.)

Mr. BURCH. I should say just about half and half.

Mr. FLOOD. But one could do the work of the telegraphing and the other of telephoning?

Mr. BURCH. Yes.

The CHAIRMAN. There is one general question I want to ask in relation to the office of the Secretary. Are there any persons on the roll receiving compensation for services rendered in the office of the Secretary, that are engaged in any other business, or receiving compensation for any other services rendered elsewhere?

Mr. BURCH. Not one, to my knowledge.

The CHAIRMAN. And there are none of them, I suppose, on the rolls here that are on the rolls of any other Department or any other Bureau, so far as you know?

Mr. ZAPPONE. That is prohibited by law, Mr. Chairman. It reads as follows:

That no part of the money herein or hereinafter appropriated for the Department of Agriculture shall be paid to any person as additional salary or compensation, receiving at the same time other compensation as an officer or employee of the Government; and in addition to the proper vouchers and accounts for the sums appropriated for the said Department to the accounting officers of the Treasury, the Commissioner of Agriculture shall at the commencement of each regular session present to Congress a detailed statement of the expenditure of all appropriations for said Department for the past preceding fiscal year. (23 Stat. L., 356.)

The CHAIRMAN. I know it is; but I happen to know that in some instances the law does not "catch on."

Mr. ZAPPONE. It does in our Department.

The CHAIRMAN. We can not always stop with what is prohibited by law, as I have discovered in connection with a lot of people, because they do not stop there; they keep right on traveling just as if there was not any law. Of course I simply make that general inquiry in relation to these people here.

Mr. SAMUEL. I was going to ask whether, if you had one of these persons employed as telegraph operator and another as operator for the telephone, it would make any difference as far as the salary was concerned?

Mr. BURCH. Well, we could, of course, get along with somebody to operate the telephones for less money; but they would not be able to handle the telegraph.

Mr. SAMUEL. Why do you get a telegraph operator to handle the telephone if you have somebody to handle the telephone?

Mr. BURCH. We need two telegraph operators to relieve each other. We need the two constantly. One could not go out of the office for a minute if there was but one there.

The CHAIRMAN. What are your hours?

Mr. BURCH. Our hours are from 9 to 4.30.

The CHAIRMAN. Do you understand it to be a fact that it is not practicable, then, for one operator to do the continuous work between 9 and 4.30?

Mr. BURCH. Yes; it might be, certainly; but then they would not be able to leave the office at all for any minute. A telegraph office is a little different from almost anything else. There must be somebody there at the key, or within hearing of the key, at all times.

(Witness: Burch.)

The CHAIRMAN. Yes. We can understand that it might be necessary, of course, for an operator to be away from the instrument for a few minutes at a time.

Mr. BURCH. For instance, they are given half an hour at noon for lunch, and they never leave the office. That office is continuously running through the lunch hour and at all times.

The CHAIRMAN. But if it were not for the lunch hour, would it not be practicable for one telegrapher to take care of the telegraphic work? This is Mr. Samuel's idea, as I understand it.

Mr. SAMUEL. Yes.

The CHAIRMAN (continuing). Would it not be practicable for one telegrapher to take care of the telegraphic work, except that he might be called out, of course, for a moment or two once or twice during the day?

Mr. BURCH. One person could take all the telegrams and send all the telegrams, undoubtedly, and be constantly at the key. There is no question about that.

The CHAIRMAN. Then why could not a less expensive clerk take care of the telephone?

Mr. BURCH. It is economy, I think, to have it as it is now, because if one of the operators went on leave, for instance, or was sick for a day, where would we get an operator to take her place? They are frequently sick and frequently take their leave during the year, and we would then have to go outside and employ somebody to take their places.

The CHAIRMAN. Oh, that is true.

Mr. SAMUEL. But do not the other Departments have that trouble?

Mr. BURCH. Oh, they have several telegraph operators; they have two or three or more telegraph operators.

The CHAIRMAN. I do not suppose there would be much practical difficulty in getting one shifted over from one of the others, would there?

Mr. BURCH. That might be done; but I think you will find our department with less telegraph operators and less telephone operators than they have in any other Department.

The CHAIRMAN. I hope so.

Mr. BURCH. I think you will, by comparison.

The CHAIRMAN. I have a notion that there is at least the maximum number necessary; in some instances there is more or less of a surplus in connection with some of the Departments.

Mr. BURCH. I do not think we have any surplus, Mr. Chairman. If you could see them at work during the day, you would find that they were kept busy; and we frequently have to send out a third person to help them with the telephone.

Mr. FLOOD. Do you have any trouble getting that third person?

Mr. BURCH. We have several messenger boys, and we put a messenger boy in to handle the telephone. We have them taught the transfer of the keys on the telephone board. They merely operate the switchboard.

Mr. FLOOD. Of course they do not operate the telegraph instrument?

Mr. BURCH. No, indeed; just the telephone. We have taught two or three of the messengers to help with it.

Mr. ZAPPONE. A few years ago, Mr. Chairman, Mrs. Guthridge attended to both the telephone and the telegraph. She filled that position for a number of years. That was before the Department extended its work. Now it is beyond the capabilities of two people. At times, when the telegraph business is very heavy, they have to get an extra telegraph operator in there to relieve the pressure.

The CHAIRMAN. How many instruments do you have in there—one or two?

Mr. ZAPPONE. I think there are two, are there not, Colonel Burch?

Mr. BURCH. I think there are three. I know of two instruments, and I think there is a third one.

Mr. ZAPPONE. Oh, yes; there are facilities for three operators.

The CHAIRMAN. There are times, then, when both of the telegraphic instruments are in operation?

Mr. ZAPPONE. Yes, sir; often. Then, at other times, one of the telegraph operators will go on leave, and, of course, it is absolutely necessary to have some one else during that absence.

The CHAIRMAN. Yes; that is true.

Mr. ZAPPONE. And even when both regular operators are on duty the pressure of work sometimes compels us to get another operator.

Mr. FLOOD. Another telegraph operator?

Mr. ZAPPONE. Yes.

Mr. FLOOD. Do you have any trouble getting this third one?

Mr. ZAPPONE. I think not long ago the pressure became so great that the Secretary's office had to telephone Professor Moore to send a man down from the Weather Bureau for a few days.

Professor MOORE. I sent down one of our operators to help them out.

Mr. FLOOD. But there was no trouble getting him?

Professor MOORE. Oh, no. We have a number of them in the Weather Bureau. The Weather Bureau has so much telegraphing.

Mr. ZAPPONE. They had to double up in their work at the Weather Bureau, however, in order to spare this man for a few days.

The CHAIRMAN. That is a large part of your work, I suppose?

Professor MOORE. Oh, yes; about \$200,000 of our appropriation goes in telegraphing.

Mr. BURCH. This lady that is getting \$1,400 is an expert. There are very few equal to her. She can handle her telegraph instrument and operate the telephone at the same time.

(The committee thereupon took a recess until 1.30 o'clock p. m.)

AFTERNOON SESSION.

STATEMENT OF SYLVESTER R. BURCH, ESQ., CHIEF CLERK OF THE
DEPARTMENT OF AGRICULTURE—Continued.

Mr. SAMUEL. I notice that you only receive a salary of \$2,500. Is that the salary of all chief clerks?

Mr. BURCH. I think I am the only one receiving \$2,500. I think that the others are all getting \$3,000.

Mr. SAMUEL. What is the difference in your duties?

Mr. BURCH. They are given \$500 extra as custodians of buildings.

The CHAIRMAN. In the different Departments?

Mr. BURCH. In the various Executive Departments.

Mr. SAMUEL. You don't get that \$500 additional as custodian of buildings?

Mr. BURCH. I do not.

The CHAIRMAN. Do you have a custodian of your buildings?

Mr. BURCH. I am the custodian; made so by act of Congress.

Mr. SAMUEL. How many buildings are you custodian of, approximately?

Mr. BURCH. We have something like twenty-five buildings which we rent and which I have to look after.

The CHAIRMAN. Does this term, "Chief clerk," which you use, apply to the chief clerks in the various Departments, such as the State, Treasury, War, Navy, Post-Office, Interior, and Department of Justice?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. And they each have one chief clerk?

Mr. ZAPPONE. One chief clerk for each Department.

The CHAIRMAN. Who relatively occupies the same position which you occupy?

Mr. BURCH. Yes, sir.

Mr. SAMUEL. Did any former chief clerk in the Department receive additional salary as custodian of buildings?

Mr. BURCH. None in the Agricultural Department.

The CHAIRMAN. Have these other chief clerks been receiving \$3,000 per annum right along?

Mr. ZAPPONE. For some years. In nearly every case the salary of the chief clerk is \$2,500, and \$500 additional compensation for looking after the buildings—that is, for acting as custodian. The chief clerk of each Department is also required to be the custodian of its buildings. Colonel Burch has filled the position of custodian for a number of years, but has never received any additional compensation. His regular salary is \$2,500. Last year the Secretary had me prepare a statement of the salaries received by the chief clerks of the various Departments. It was found that our Department was the only one where the salary was not \$3,000—that is, \$2,500 for service as chief clerk and \$500 for service as custodian of buildings. I believe, however, there is one exception, and that is in the Department of Justice, where the chief clerk also acts as custodian. I know the Secretary thought seriously of making an estimate in the appropriations for this year for the additional \$500 for the chief clerk's duties as custodian. But he wanted to keep down his expenditures, and in fact recommended very few promotions.

The CHAIRMAN. What are the duties of a custodian?

Mr. ZAPPONE. He has charge of all the buildings and looks after their preservation and repair.

The CHAIRMAN. What does he have to do; what work does he have to do that involves his time?

Mr. BURCH. He has charge of the property of the different bureaus. He is custodian of the property of the Secretary's office, including the horses and carriages. If any of the bureau chiefs want additional office space he comes to me, and I have to arrange for it.

Mr. SAMUEL. That work, then, as I understand it, is in addition to your work as chief clerk.

(Witnesses: Zappone, Burch.)

MR. ZAPPONE. He has also to pass upon the necessity of all expenditures for repair work.

THE CHAIRMAN. Where is the statute that describes those duties?

MR. ZAPPONE. I think it is a general statute.

THE CHAIRMAN. I wish you would give those statutes, and we will have them inserted in the record.

MR. ZAPPONE. I will do so, if practicable.

THE CHAIRMAN. Now, the hours in the Department are from 9 to 4.

MR. BURCH. No; 9 to 4.30.

THE CHAIRMAN. Are there any of the employees who do any other work out of hours?

MR. BURCH. Not that I know of. They may, some of them, do some work outside, but not that I know of.

THE CHAIRMAN. Do you have any knowledge of any who do any work of any consequence or importance outside of hours?

MR. BURCH. I have not.

MR. ZAPPONE. There is a general order of the Secretary which prohibits outside work except in such cases as he personally passes upon and approves.

THE CHAIRMAN. I wish you would put that order in as a part of the record.

MR. ZAPPONE. I will do so. It follows:

UNITED STATES DEPARTMENT OF AGRICULTURE,

OFFICE OF THE SECRETARY,

*Washington, D. C., September 25, 1905.**To Officers and Employees of the Department of Agriculture:*

The following regulations are promulgated for your guidance:

REGULATION I. No officer or employee of the Department who is in a position, either to influence the award of a contract with the Department, or to cause purchases of supplies to be made for the Department, shall be interested in any firm, company, or corporation doing business with the Department.

REGULATION II. Officers or employees who are engaged upon investigations of special industries for the Department shall not be connected with, or interested in, any firm, company, or corporation whose scope of business includes the industry which the officer or employee is investigating for the Department; and an officer or employee engaged upon the above-described work shall in no case allow his name, his work, or his connection with the Department to be used in promoting, or exploiting, or selling stock in, any firm, company, or corporation, the scope of whose business includes the special industry which such officer or employee is investigating for the Department.

REGULATION III. No officer or employee shall perform or be engaged upon work for private firms, companies, corporations, or institutions without the written consent of the Secretary, first had and obtained through the chief of the bureau, office, or division in which said officer or employee serves.

The purpose of this regulation is not to prevent officers and employees of the Department from performing proper work, outside of office hours, which does not interfere with or hamper work for the Department, but is designed to afford the Secretary an opportunity to pass upon the kind and quantity of outside work which may be permitted in order that such work shall not impair the usefulness of such officers or employees to the Government.

JAMES WILSON, *Secretary.*

UNITED STATES DEPARTMENT OF AGRICULTURE,

OFFICE OF THE SECRETARY,

*Washington, D. C., October 20, 1905.**To Chiefs of Bureaus, Offices, and Divisions:*

Regulation III of Department Circular No. 4 prescribes that—

“No officer or employee shall perform or be engaged upon work for private firms, companies, corporations, or institutions without the written consent of the

(Witnesses: Burch, Zappone.)

Secretary first had and obtained through the chief of the bureau, office, or division in which said officer or employee serves."

It is hereby ordered that before transmitting to the Secretary for his consideration the written application of an employee or officer for permission to engage in or continue any nonofficial occupation, the chief of the bureau, division, or office shall indorse upon said application his recommendation in the premises, whether of approval or disapproval.

JAMES WILSON, *Secretary.*

The CHAIRMAN. I find that there are four classes of clerks referred to—classes of \$900, \$1,000, and \$1,100, and \$1,200 to \$1,800, being classes 1, 2, 3, and 4. Please explain what the duties of those clerks are, what they do, giving a differentiation between the work of the four classes, if there is any.

Mr. BURCH. Oh, yes; there is a vast difference in the work of the different classes.

The CHAIRMAN. Now begin with class 4, for instance.

Mr. BURCH. Well, he receives \$1,800, and he must be a man who is very proficient in the duties in which he is engaged. He may be a supervising man of an office—have charge of an office.

The CHAIRMAN. Now we will take one specific case here, Mr. Roberts. What duties does this particular clerk happen to be engaged in? He is of class 4.

Mr. BURCH. He is with the appointment clerk, and acts as appointment officer when the appointment clerk is absent. When Mr. Bennett is absent he takes his place and is really the assistant appointment clerk. It is necessary for him to know the civil-service laws in regard to all appointments and to take charge of the entire work in the absence of Mr. Bennett.

The CHAIRMAN. What do the clerks in class 3 do?

Mr. BURCH. One of them is my assistant, assistant chief clerk, Mr. Frickey; and another one of them is in Mr. Bennett's room.

The CHAIRMAN. What does he do, or, I might put it this way, what do they do?

Mr. BURCH. My assistant takes my chair in my absence, and looks after the filing of all the mail, makes jackets for certain important letters, such as are sent to the chief of a bureau for action, and they note the same on this jacket and return the papers. It is then filed in the file room where the letter and the papers can be found at any time.

Mr. FLOOD. What salary do clerks of class 3 get?

Mr. BURCH. One thousand six hundred dollars.

The CHAIRMAN. What do the other clerks do? You have given the duties of the clerks who work with you, now what do the other clerks do?

Mr. BURCH. Well, one is Mr. C. C. Carroll, who is a file clerk, and has charge of the file room. He comes under that class. Miss Housman does also.

The CHAIRMAN. He only worked part of the time, I see.

Mr. BURCH. Yes; and was transferred to another salary in another bureau.

Mr. ZAPPONE. The three named above Mr. Frickey filled one statutory position during the year, and the \$1,600 was divided among the three.

Mr. BURCH. Mr. Pennybacker is with the appointment clerk making out appointments.

(Witness: Burch.)

The CHAIRMAN. I thought Mr. Roberts was the acting appointment clerk.

Mr. BURCH. Yes; but he has eight or ten clerks in his office.

The CHAIRMAN. In what way are the duties discharged by Mr. Pennybacker different from those discharged by Mr. Roberts?

Mr. BURCH. When the appointment clerk is absent, of course, he would take Mr. Roberts's place.

The CHAIRMAN. But that can not be a great length of time, because it is the appointment clerk's business to be there all the time.

Mr. BURCH. Of course they are not there always.

The CHAIRMAN. He is not away days at a time, is he?

Mr. BURCH. He has been away three or four weeks broken down in health, just recently.

The CHAIRMAN. That, of course, is an exception, but ordinarily, if he is well, he is there substantially all the time.

Mr. BURCH. Yes; most of the time; certainly.

The CHAIRMAN. Is he not there all the time?

Mr. BURCH. He has thirty days' leave.

The CHAIRMAN. Oh, yes, they all have thirty days' leave.

Mr. BURCH. There are some nine or ten clerks in the office, and some of the clerks are more responsible than others.

The CHAIRMAN. What makes them more responsible? That is what I wanted to know, providing you can put it in concrete form.

Mr. BURCH. I don't know that I could explain it so you could understand it fully. The appointment clerk looks after the clerks and directs certain things to be done. Certain clerks make out appointments and keep track of them and see that they are made properly and recorded and kept in proper shape.

The CHAIRMAN. How many clerks does the appointment clerk have in his office?

Mr. BURCH. I think nine or ten.

The CHAIRMAN. Is there business enough in the office to keep nine or ten men continuously occupied?

Mr. BURCH. Yes, certainly. That is as busy an office as you will find anywhere.

The CHAIRMAN. How about the clerks of class 2; what do they do?

Mr. BURCH. Mr. Clark—he aids the property clerk, receives express, ships and sends out express and freight, and keeps track of it.

The CHAIRMAN. What is the property clerk's name?

Mr. BURCH. C. B. Lower.

The CHAIRMAN. C. B. Lower, chief of the supply division. In other words, you call him property clerk, or chief of the supply division?

Mr. BURCH. Yes.

The CHAIRMAN. Now, I will ask what Miss Moore does, for instance. What I want to get at is the distinction between the duties that these men discharge for the purpose of getting an idea of the basis upon which there is a difference in compensation.

Mr. BURCH. She is our file clerk. After a clerk has been in the Department for several years and becomes proficient in his work and duties he is eligible for transfer. Each clerk has different duties to

(Witness: Burch.)

perform, and those who are getting higher salaries and are supposed to do the work requiring greater proficiency and which will be of more value to the office—

The CHAIRMAN. Do we understand from that that when a clerk has been there a number of years and becomes proficient that he succeeds in doing more work, or is qualified to do a higher grade of work, and is then assigned to that work?

Mr. BURCH. Both. He is qualified to do a higher grade of work, which is generally assigned to him, and if there are vacancies in salary they are promoted to higher positions.

The CHAIRMAN. As you understand it, a promotion or an increase in salary indicates a difference in the kind of work done, but not exactly so much the capacity to do that particular work, or is it that?

Mr. BURCH. When they have been in the service a long time they frequently receive promotion and probably do not change the character of work done, but frequently the work is also changed.

The CHAIRMAN. Is that what you call promotion, or is it simply an increase in salary? They call them classes, because the classes are different mainly upon the basis that they have one salary attached to one class and one to another; but while a man is doing a certain amount of work and by long experience he can turn off more of that same kind of work, and therefore becomes very proficient in that particular class of work, then you promote him to a higher class, which gives him higher pay?

Mr. BURCH. Yes; because of efficiency—that is, long-service men are more proficient.

The CHAIRMAN. If the efficient men turn off more work they get better results, do they not?

Mr. FLOOD. Isn't that the case in all the Departments of the Government?

Mr. BURCH. Yes; long service entitles them to promotion when there is a vacancy for promotion. They are not made unless there is a vacancy.

The CHAIRMAN. What kind of work do the clerks of class 1 do?

Mr. BURCH. Similar work to the others, but probably in a lower degree.

The CHAIRMAN. That is to say, less efficient; they are not capable of accomplishing so much.

Mr. BURCH. It might not be less efficient. If they had opportunity for promotion they might fill a position in a higher grade if there was an opening for them.

The CHAIRMAN. Is the service so arranged that men receiving \$1,000 succeed in accomplishing as much as those receiving \$1,600?

Mr. BURCH. It so happens in some instances.

The CHAIRMAN. Perhaps it might be put the other way, the men getting \$1,600 do not do so much as those receiving \$1,000.

Mr. BURCH. It frequently happens that a man who has only been on the roll a short time may be just as efficient to fill a vacancy as a man who receives \$1,400.

The CHAIRMAN. Are these men promoted on the basis of the records that they have made?

Mr. BURCH. They are.

The CHAIRMAN. What sort of records do you keep?

(Witnesses: Burch, Zappone.)

Mr. BURCH. We keep efficiency records.

The CHAIRMAN. Explain in a general way just what an efficiency record is.

Mr. BURCH. An efficiency record is kept by the chiefs of divisions mostly, and they report to the chief of the bureau, and then they make up the records from those reports.

The CHAIRMAN. Take the case of one clerk whom you happen to know about and give us an illustration of the efficiency record in connection with the discharge of his duties, so that we can take that as a sample case and get an idea of the basis upon which these promotions are made.

Mr. BURCH. Well, I think Mr. Zappone has a blank with him and had better answer the question.

Mr. ZAPPONE. I have no blank with me, but remember its contents. The first item is the quality of the work performed by an employee, rated on a scale of 100 per cent.

The CHAIRMAN. What are the elements?

Mr. ZAPPONE. I have given the first. The next is the quantity of work performed by the employee. The next is the attendance, the next is his deportment, then the number of days he has been absent sick, and the number of days that he has been absent on annual leave.

Then there is a separate paragraph asking whether that employee is capable of doing work of a higher intellectual quality or character than that to which assigned. Then in the next and final paragraph the chief of bureau or division is asked to make recommendations in a general way as to his ability and his value to the Department, and as to whether or not he is worthy of promotion, together with any other remarks the chief of the bureau or division may desire to make. These efficiency reports are filed in the office of the appointment clerk, and the board of promotion review—created some years ago by the Secretary, and composed of the chief clerk of the Department, the appointment clerk, and the chief of the bureau or independent division in which the vacancy occurs—consults them and makes its recommendation to the Secretary on the ratings therein given and on the quality and quantity of the work turned out by the employee finally selected. When a man is first appointed to a position in the Department it is nearly always to a low grade and it is some time before he becomes experienced in his work. In the work of the Department he naturally, as time elapses, becomes more proficient and therefore more eligible for promotion, so when a vacancy occurs above him he is logically one of the persons eligible for consideration and selection. We seldom ask for a certification from the Civil Service Commission to fill any vacancy except one at the bottom of the list. This puts the new men in the low-grade positions at the bottom of the ladder until vacancies occur, and results in a progressing salary for the employee as he becomes experienced in the work, more efficient, and therefore more valuable to the Department.

The CHAIRMAN. How often are these records made up?

Mr. ZAPPONE. Every six months.

The CHAIRMAN. Do they keep daily tab on the men?

Mr. ZAPPONE. Yes, sir; each chief of bureau or independent division is supposed to know thoroughly the work of the employees un-

(Witnesses: Zappone, Moore.)

der him, and a daily record is kept of their sick and annual leaves, and of their efficiency by general observation.

The CHAIRMAN. The men who have charge of these various employees keep right along, every day, a record of their work on these lines that you have suggested?

Mr. ZAPPONE. A daily mental record. They don't keep it in writing.

The CHAIRMAN. When do they reduce the record to writing?

Mr. ZAPPONE. Every six months.

The CHAIRMAN. So that a man does not really get the mathematical result of the work he does, but at the end of six months the heads of the bureaus who have charge over them simply sit down, and on the basis of their recollection, extending over that period of time, make these records relative to the efficiency of the men?

Mr. ZAPPONE. Yes, sir; both as to quality and quantity of work done and as to general ability.

The CHAIRMAN. That does not really result in an absolute record. How can a man carry in his head the efficiency of half a dozen or fifteen or twenty clerks?

Mr. ZAPPONE. I would rather you would put that question to Professor Moore, as he has come in personal contact with that work more than I have.

The CHAIRMAN. We will do that when we get to the professor. That is the way it is done, however?

Mr. ZAPPONE. Yes, sir. You can see how difficult it would be to keep a daily record of the efficiency of each person. Years ago we did have a daily work report in which a man stated over his signature the amount of work performed by him each day and the character of it. But this gave rise to much criticism, not only from the employees, but from the public generally, so it was dispensed with.

Mr. FLOOD. Do not these chiefs make a memorandum oftener than once in six months?

Mr. ZAPPONE. Possibly they do, but I think as a general rule it is a mental note made by the chief of division or his chief clerk in examining the work of each employee, in comparing it with the quantity and quality of the work turned out by other employees, and in distributing new work.

Mr. SAMUEL. Would it operate against a man if he takes his sick leave?

Mr. ZAPPONE. That is taken into consideration, and his marking is correspondingly reduced.

Mr. FLOOD. They do not reduce him for taking a leave which the Government allows him, do they?

Mr. ZAPPONE. His rating is only affected by sick leave.

Mr. FLOOD. In taking thirty days' leave?

Mr. ZAPPONE. If he takes a sick leave in addition to annual leave it reduces his attendance marking of 100 to possibly 98 or 95. His annual leave does not count against him.

Mr. SAMUEL. If a man does not take an annual leave he does not get credit for it, does he?

Professor MOORE. No; his rating is not increased.

The CHAIRMAN. Are these records of efficiency open to inspection of the men themselves?

(Witnesses: Zappone, Burch.)

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Explain to us, as briefly as you can, what these clerks of class 1 do—the nature of their duties, the kind of work they perform.

Mr. BURCH. As I said before, many do the same kind of work as those receiving higher salaries and are competent to do it if there is a place for them.

The CHAIRMAN. Now, please look at the list and pick out the name of some man whom you happen to personally know.

Mr. BURCH. I know all of them.

The CHAIRMAN. I will take one at random. Tell me what Thomas J. Ray does, the kind of work he performs at the Department, and what sort of service he renders, so that we can get an idea of what he does for the Government for that sum of money.

Mr. BURCH. He handles the mail of the Department, and has been there for about forty years. I think he is the oldest man in the Department now, the oldest having died a short time ago. He brings the mail at half past 8 in the morning, and he is constantly going between the Department and the post-office after the regular mail and the registered matter. He is on duty Sundays and holidays; never takes any leave of absence. I do not think he has been absent from the Department over fifteen days in thirty years.

The CHAIRMAN. Does he do all of that kind of work for the office?

Mr. BURCH. Altogether; handles the mail.

The CHAIRMAN. He is able to do everything of that kind that the Department needs?

Mr. BURCH. No.

The CHAIRMAN. Does he have helpers?

Mr. BURCH. He handles all the personal mail, the letter mail, but we have mail wagons that carry 2 tons at a time, and we have to have two men who go with that besides Mr. Ray.

The CHAIRMAN. That is printed matter?

Mr. BURCH. Yes, sir; we send out tons of it.

The CHAIRMAN. Mr. Ray handles the letter and personal mail?

Mr. BURCH. Yes, sir; and he has been for some thirty-odd years.

The CHAIRMAN. Has he had any increase in his salary?

Mr. BURCH. Not since I have been there.

The CHAIRMAN. I suppose that happens to be a peculiar place where efficiency does not increase very much with age, because there is just so much mail to handle anyway?

Mr. BURCH. I will say that he could not be more efficient than he is.

The CHAIRMAN. That is, he could not do any more, and you could not tolerate him if he did less?

What about these clerks that receive \$1,000 and under? They are not in a numbered class. Do they come under the general classification that you gave?

Mr. BURCH. Yes, sir.

The CHAIRMAN. Let me pick one out at random. Do you know them all personally?

Mr. BURCH. I think so.

The CHAIRMAN. What sort of work, for instance, does Mr. Hines do?

Mr. BURCH. He is our postmaster and distributes the mail.

(Witnesses: Burch, Zappone.)

The CHAIRMAN. Is he connected with Mr. Ray?

Mr. BURCH. Mr. Ray carries the mail to and from the office. Mr. Hines is the postmaster who puts up the mail and distributes it, and he is another faithful man who never takes any leave and is not often sick. He comes on duty about 8 o'clock in the morning and has our mail ready for distribution when we get there at 9.

The CHAIRMAN. How often is the mail distributed in the Department?

Mr. BURCH. Four or five times a day.

Mr. SAMUEL. This is a case where the postmaster gets \$720 and the mail carrier \$1,200.

Mr. BURCH. I will say that the postmaster is worth more money, but we could not give it to him before. He has recently been promoted to \$1,000.

Mr. FLOOD. He is still postmaster?

Mr. BURCH. Yes, sir.

The CHAIRMAN. Doing the same work?

Mr. BURCH. Yes, sir.

The CHAIRMAN. How could he accomplish any more? Still I suppose the mail might increase.

Mr. BURCH. The mail is increasing all the time. He has been filling a place that heretofore paid \$1,000 or \$1,200 a year, but he was not in a position so that he could be put into that class because he was taken in as a laborer and was recently covered in by act of Congress.

The CHAIRMAN. What did he first do when he went into the Department as laborer?

Mr. BURCH. I don't know.

Mr. CHAIRMAN. How long has he been postmaster?

Mr. BURCH. Four years, I think.

Mr. FLOOD. Was he carried on the books as a laborer during that time?

Mr. BURCH. Yes.

Mr. FLOOD. As long as he received \$720 he was a laborer?

Mr. BURCH. Yes, sir.

Mr. SAMUEL. Do you have any clerks in the \$720, the \$1,000, the \$1,200, or the \$1,400 class doing the same work?

Mr. BURCH. Well, I can not say that we have clerks doing exactly the same work. The work is different all the way around.

Mr. SAMUEL. You do not have two men sitting at the same desk, doing the same work, with one man receiving \$720 a year and the other \$1,000 a year?

Mr. BURCH. Yes; I think there are some in that position.

Mr. FLOOD. The lowest clerks get \$720 a year?

Mr. BURCH. Yes; I think some of them get \$600.

Mr. FLOOD. I see laborers receive \$600.

Mr. ZAPPONE. You refer to copyists, do you not, Colonel Burch? Their work is somewhat similar in character, but I suppose you mean that the quality and quantity vary with the individual. These low-salaried clerks are principally copyists and should be so regarded.

Mr. BURCH. They might do the same kind of work, but one having

(Witnesses: Burch, Zappone.)

been longer in the service than the other would receive promotion first.

The CHAIRMAN. How long has the gentleman that carries the mail—of course we are not criticising him—how long has he been carrying this mail back and forth from the Agricultural Department to the post-office at the rate of \$1,200 a year?

Mr. BURCH. Well, I couldn't tell you. He has been getting \$1,200 ever since I have been there, and that is twelve or fourteen years.

The CHAIRMAN. Now, as to Mr. Hines. Has he been getting \$720 during the whole time as postmaster?

Mr. BURCH. Six hundred dollars first, and promoted to \$720.

The CHAIRMAN. How long has he had \$720?

Mr. BURCH. A year or two, I think.

The CHAIRMAN. And now he has been promoted to \$1,000 a year doing the same work?

Mr. BURCH. The same work.

The CHAIRMAN. Are we to understand that the mail has increased at that rate of percentage?

Mr. BURCH. That office had heretofore paid \$1,000 or \$1,200. This man has not been receiving justice. It has not been particularly the Department's fault. He was not in a position in which he could be promoted to \$1,000 or \$1,200 until recently.

The CHAIRMAN. Simply because there were not clerks enough? He was doing this work, and he has been doing it right along all the while. You did not have any other clerk acting as postmaster, but you have had other clerks there who had been in longer?

Mr. BURCH. He is a very efficient man in the position he occupies, and we would have given him more salary if we could. The President recently made an order making his case an exception so he could be promoted.

Mr. FLOOD. He was carried on the books as a skilled laborer, but he was doing the work of postmaster?

Mr. BURCH. Yes. In order to promote him the President was asked to make an order, which he did.

The CHAIRMAN. Can not you give me an illustration of some clerk that is now doing the same work that he has been doing for the last four or five years and who has been promoted from one grade to another, so I can get at the details and the real basis of the promotion. Of course I know nothing about these clerks themselves, so I can not select one for example.

Mr. BURCH. Now, there is Mr. Frickey, my assistant. He was first in the Bureau of Animal Industry at \$1,200, and then promoted to \$1,400, and when I took him into my office I promoted him to \$1,600.

The CHAIRMAN. What I wanted you to give, if you can, is the name of some man on the roll who now does exactly the same work that the postmaster is doing and has been doing for the last three or four years, but has received promotion from one grade to another.

Mr. ZAPPONE. There have been very few promotions made on the roll of the Secretary's office, now under discussion; the case of Wyatt, from clerk of class 1 to class 3, is one.

Mr. BURCH. He is in Mr. Bennett's room, and recommended by

Bennett for promotion. He is a valuable man and is entitled to receive more compensation.

The CHAIRMAN. Did he do more work, accomplish more results?

Mr. BURCH. I don't know. Mr. Bennett would be able to answer that question. He is under him altogether. I do not know what work he is doing.

Mr. ZAPPONE. Here is another one: S. O. Moore, from \$1,000 to \$1,200.

Mr. BURCH. She was promoted.

The CHAIRMAN. What was she doing when she received \$1,000 a year?

Mr. BURCH. She was changed from one position to another. She is now in charge of the file room.

The CHAIRMAN. What was she doing when she got \$1,000?

Mr. BURCH. Stenographer and clerk.

The CHAIRMAN. Now what does she do?

Mr. BURCH. She is in charge of the file room—has charge of filing the Secretary's mail. That is a different kind of work.

The CHAIRMAN. And it requires more skill to do this work that she is now doing than the work which she was formerly engaged in?

Mr. ZAPPONE. Here is another one: T. E. Griffith, from a clerk at \$840 to a clerk at \$1,000. I presume he was a copyist at \$840, and later was assigned to clerk's duties.

Mr. BURCH. He was in Mr. Bennett's room.

The CHAIRMAN. What is a copyist, a letterpress copyist?

Mr. BURCH. No; writing papers, writing anything that may be given to them.

Mr. ZAPPONE. It is purely mechanical work and does not require any special skill.

The CHAIRMAN. But the person has to have a good handwriting.

Mr. BURCH. It has to be accurately done.

Mr. FLOOD. It appears here that the lowest clerk receives a salary of \$720. Am I right about that? And that the highest salary for skilled labor is \$720?

Mr. BURCH. Skilled laborers may receive \$1,000, and we have some who receive that.

The CHAIRMAN. Now I see you have an engineer and five firemen and assistant firemen. How many engines do they run?

Mr. BURCH. They are scattered in different buildings, five or six different buildings; they have to go around to the different buildings.

The CHAIRMAN. So that this engineer has charge of all the engines?

Mr. BURCH. Yes, sir; and the firemen are left in charge, too, to keep the fires up.

The CHAIRMAN. Have you got any duplicate service of firemen in connection with engines, or one fireman or assistant fireman at each engine?

Mr. BURCH. Two firemen, one to go on when one comes off.

The CHAIRMAN. That would represent, if there are two required to each engine, two and one-half to an engine.

Mr. BURCH. They are firemen, not engineers, excepting one or two. We have two or three good engineers who can go around and supervise the work.

(Witnesses: Zappone, Burch.)

MR. ZAPPONE. They do work both night and day at certain seasons of the year.

MR. BURCH. During cold weather we have to keep them on at night, however.

THE CHAIRMAN. There is only one chief engineer. Is the assistant fireman an engineer also?

MR. BURCH. Some of them. There is Mr. Riggles, who has been in the service some twenty-five years or more, at \$900. We have tried to get him promoted, but we have not yet been able to do so. He is deserving of \$1,200 at least. He is a good engineer, passed examinations, and is on the list as an engineer.

THE CHAIRMAN. Are these other mechanics necessary and kept fully employed?

MR. BURCH. Yes, sir; they are. You will find on the emergency roll that we have had to employ others to assist.

MR. SAMUEL. How do those wages compare with the wages in other Departments in a similar character of work?

MR. BURCH. I think they are mostly less. I think the other Departments are given higher salaries than we are. I have heard the men complain that such was the case.

MR. SAMUEL. Have you investigated as to whether those complaints were true or not?

MR. BURCH. No; I have not personally.

THE CHAIRMAN. Here is a mechanic at \$1,100 a year. What is the distinction between a carpenter and a mechanic? I see you have a carpenter there at \$1,000.

MR. BURCH. He manufactures rubber stamps for the bureaus by the thousand. We have a big factory for rubber stamps.

MR. ZAPPONE. The Department manufactures material of that kind, and this mechanic is the man who does the work. He has charge of it, and has four or five men under him.

THE CHAIRMAN. What are they called, laborers?

MR. BURCH. Most of them are skilled laborers.

MR. SAMUEL. You have watchmen here, I see. Are they employed day or night?

MR. BURCH. Both.

THE CHAIRMAN. How many buildings do they have charge of?

MR. BURCH. Some twenty-five buildings.

THE CHAIRMAN. There are only fifteen of them here.

MR. BURCH. We have men on duty like sentinels.

THE CHAIRMAN. So that one man takes charge of more than one building?

MR. BURCH. We have groups of them.

THE CHAIRMAN. Then they are grouped so that they are a convenient distance apart.

MR. BURCH. One watchman takes charge of the whole group, going from one building to the other during the night. We have two on the ground in the daytime and one at the door. But the night men go on duty at 4.30 p. m. and are relieved at 8.30 a. m.

THE CHAIRMAN. I see you have seven messengers and an assistant messenger here. Are those men on duty at the various bureaus? What do they do?

MR. BURCH. Some four or five are in the main building under my orders, handling mail and doing various things.

The CHAIRMAN. I thought our friend, Mr. Ray, handled the mail?

Mr. BURCH. I mean distributing the mail, carrying it from one place to another.

The CHAIRMAN. Running errands from the bureau heads to the men in the Department.

Mr. BURCH. Yes, sir. One of them copies the letters in the file room, and another does similar work in the Secretary's office and the Assistant Secretary's office.

Mr. FLOOD. Do you pay these firemen for the whole year or a portion of the year?

Mr. BURCH. For the full year. That is, their salary is \$720 per year.

Mr. SAMUEL. I notice you have a painter at \$900 and another at \$540 a year, and another at \$3.50 per day. What is the difference in the work?

Mr. BURCH. There is not much difference in the work, only that the one at \$900 is in charge and the others work under him.

The CHAIRMAN. He does not have a very large crew to supervise?

Mr. BURCH. No; he does not.

Mr. ZAPPONE. When we employ a plumber at \$3.50 a day, it is an emergency case and the employment lasts only a few days.

The CHAIRMAN. Does the man who receives \$900 get the extra \$60 a year because he is the foreman?

Mr. BURCH. He is the grainer; he does the finer work.

Mr. ZAPPONE. These per diem rates are the union rates of wages and are for temporary emergency services only. You will notice the amount is only \$86.40 in the case of the grainer or painter mentioned by Colonel Burch, which would not be for many days' work during the year. Another man receives \$56, showing the temporary character of his services.

The CHAIRMAN. To recur to the firemen. In the winter season these engines are running day and night?

Mr. BURCH. Yes, sir.

The CHAIRMAN. How about the summer season?

Mr. BURCH. They are not running then.

The CHAIRMAN. What occasion have you for the firemen during that period then?

Mr. BURCH. They frequently use them as watchmen, and they take charge of the engines just the same.

The CHAIRMAN. Yes; but what are these engines used for; mainly for heating purposes, are they not?

Mr. BURCH. Heating and running machinery.

The CHAIRMAN. But mainly for heating, I take it.

Mr. BURCH. Yes, sir.

The CHAIRMAN. During at least eight months of the year you do not have to have heat, do you?

Mr. BURCH. Oh, yes; for only about five months we have no heat.

The CHAIRMAN. Well, we will say there are five months when it is not needed, or I will put it this way: There are at least five months in the year when you do not have to have any heat. What is the occasion for any regular firemen during that part of the year?

Mr. BURCH. Well, they find use for them when they are not running the engines. We have other service for them.

(Witnesses: Burch, Moore.)

The CHAIRMAN. When they are running the engines; but who does the work during the winter season that the firemen are made to do during the summer season when they do not have work to do as firemen?

Mr. BURCH. I wish you would wait for my reply to that question until I consult with the engineer, for I can not say at this time.

The CHAIRMAN. Will you look that up so as to be able to explain it to us?

Mr. BURCH. Yes, sir.

The CHAIRMAN. Because if you have firemen enough to operate your engines in the cold weather and then do not have any occasion to use the engines for heating purposes during the summer season, of course during that period these firemen do not have anything to do; and if at the same time you have men enough to do all the necessary work about the department during the winter season, notwithstanding the firemen are employed about their business as firemen, there would not seem to be any occasion for the firemen to be employed during that portion of the year to do firing. Please look that up.

Professor MOORE. In the summer, when the engines are not running, there is a great deal of work to be done on the outside about the premises.

The CHAIRMAN. That may be the explanation of it.

Mr. FLOOD. There may be more watching.

Mr. BURCH. I think myself that they use them for watchmen in the summer and supplying places made vacant by leaves of absence.

Professor MOORE. They use these extra men principally in granting leaves of absence to other employees.

The CHAIRMAN. You can ascertain that, Mr. Burch, and let us know about it later.

Mr. BURCH. They are used as temporary watchmen during the absence of other watchmen on leaves of absence, and are also required to take their own leaves at that season of the year.

The CHAIRMAN. Now, are all these people that are carried on the roll here, beginning on page 4 and 5, until we get down to the emergency employees, really needed for the discharge of duties? Does their work keep them employed all the time?

Mr. BURCH. We don't carry anybody on the roll that we have not use for every hour in the day.

The CHAIRMAN. By keeping them busily employed during the period of working hours.

Mr. BURCH. Yes, sir.

The CHAIRMAN. What is the occasion for these extra laborers in the emergency employment—that is, why does it become necessary to employ them.

Mr. BURCH. Extra jobs of work which the regular employees can not perform. We have a great deal of that on account of the new buildings. We have had occasion to hire a great many extra men in changing the heating apparatus, making alterations to buildings, tearing down buildings, removing other buildings, and for such purposes.

The CHAIRMAN. Is that kind of work going on in the Department all the time or is it incidental to this year?

(Witnesses: Burch, Zappone.)

Mr. BURCH. Incidental to this year. Those people are not on the roll now.

The CHAIRMAN. It is caused largely, as I understand it, by the changes incident to the erection of the new buildings and the rearrangement of other buildings for that purpose.

Mr. BURCH. Yes, sir.

Mr. SAMUEL. Do you have much trouble in getting labor at \$1.50 per day?

Mr. BURCH. Well, yes. It is quite difficult to get them. It is only very common labor that we can get for that price.

Mr. SAMUEL. I see you have a clerk and stenographer, \$900, and a stenographer at \$1,200 and a clerk at \$1,200 on the "emergency roll."

Mr. BURCH. Those are men that are employed by the solicitor temporarily. There is a great deal of work performed, and these men are on his roll because we had no vacancy on the Secretary's roll to place them.

Mr. ZAPPONE. And most of these employments are temporary in character. I was going to ask the chairman if he would care to have a statement of the appointments in the Department during the last year, together with the number of changes by resignation or otherwise. I have here a copy of the annual report of the appointment clerk, which gives that information. This shows the number of appointments made during the past year, 1906, the number of resignations, the promotions, etc. It also shows the total number of employees in the Department of Agriculture in 1906 and prior years.

The CHAIRMAN. You might put that in the record right here.

Mr. ZAPPONE. Very well. It is as follows:

Summary of appointments of persons and changes affecting employees in the United States Department of Agriculture during the fiscal year ended June 30, 1906.

IN THE CLASSIFIED CIVIL SERVICE.

Number of persons appointed from the eligible registers of the Civil Service Commission for a probationary period of six months.....	764
Number of persons given absolute appointments who have satisfactorily served during their probationary appointment of six months.....	480
Number of reinstatements of persons who have resigned, etc., from the service of the Department and been restored to its rolls within one year from the date of their retirement therefrom.....	26
Number of transfers of persons within the Department from subclerical to clerical and higher grades.....	37
Number of persons within the Department transferred from the classified labor grade to higher grades of classified positions according to act of Congress approved June 30, 1906.....	198
Number of transfers from other Departments of the United States Government to the United States Department of Agriculture.....	38
Number of promotions in salary and class of persons in the Department...	917
Number of reductions in salary and class of persons in the Department...	99
Number of temporary and emergency appointments for periods of six months or less in Washington, D. C.....	178
Number of temporary and emergency appointments for periods of six months or less in the forests and fields and on stations outside of Washington, D. C.....	445
Number of persons who failed to accept positions.....	51
Number of persons who resigned their positions in the Department.....	403
Number of persons whose appointments were terminated by order of the Secretary of Agriculture.....	335

(Witness: Zappone.)

Number of persons who were removed from the service of the Department by order of the Secretary of Agriculture.....	56
Number of persons who died while in the service of the Department.....	27
Number of persons appointed to positions excepted from civil-service examination in Washington, D. C.....	14
Number of persons appointed to positions excepted from civil-service examination in the forests and fields and on stations, whose appointments were for very temporary periods, outside of Washington, D. C.....	665
Number of persons whose appointments to positions excepted from civil-service examination have been terminated.....	279
Total number	5, 012

Summary of appointments of persons and changes affecting employees in the United States Department of Agriculture during the fiscal year ended June 30, 1906.

IN THE UNCLASSIFIED SERVICE.

Number of appointments in the unclassified service in Washington, D. C.....	74
Number of separations, including resignations, terminations of appointments, and removals in Washington, D. C.....	77
Number of persons who died while in the unclassified service in Washington, D. C.....	1
Number of unclassified-service appointments, being laborers, in the forests and fields and on stations outside of Washington, D. C., whose appointments were for very temporary periods, in the great majority of cases averaging not more than three months.....	1, 539
Total number	1, 691
Total number of actions respecting persons in the classified civil service ...	5, 012
Total number of actions respecting persons in the unclassified service	1, 691
Total number	6, 703

Number of persons employed in the different bureaus, divisions, and offices on July 1, 1906, showing the number employed outside of Washington, D. C., and the number employed in Washington, D. C., and the totals thereof.

Bureau, division, or office.	Number of employees.		
	Outside of Washington, D. C.	In Washington, D. C.	Total.
Office of the Secretary.....	1	111	112
Weather Bureau.....	1, 625	186	1, 811
Bureau of Animal Industry.....	1, 326	129	1, 455
Bureau of Plant Industry.....	216	357	573
Forest Service.....	1, 170	220	1, 390
Bureau of Chemistry.....	26	84	110
Bureau of Soils.....	60	73	133
Bureau of Statistics.....	60	90	150
Bureau of Entomology.....	48	43	91
Bureau of Biological Survey.....	7	24	31
Division of Accounts and Disbursements.....		23	23
Division of Publications.....		166	166
Library.....		16	16
Office of Experiment Stations.....	86	50	136
Office of Public Roads.....	23	22	45
Total	4, 648	1, 594	6, 242

^a Of these, 64 are employed regularly at various times during the year and 110 are employed occasionally; but none of these 174 were employed on July 1, 1906.

GROWTH OF THE DEPARTMENT.

On September 30, 1861, the Agricultural Division of the Department of the Interior, being the immediate predecessor of the United States Department of Agriculture, consisted of nine persons.

(Witnesses: Burch, Zappone.)

The Department of Agriculture was established July 1, 1862, according to the provisions of an act to establish the Department of Agriculture, approved May 15, 1862 (vol. 12, chap. 72, pp. 387, 388, U. S. Stat. L.).

Growth of the force of the Department from September 30, 1863, to July 1, 1906.

Date.	Number employed.	Date.	Number employed.
1863, September 30	29	1891, July 1 ^a	1,577
1867, September 30	99	1893, July 1	1,870
1871, September 30	84	1895, July 1	2,043
1873, September 30	92	1897, July 1	2,444
1875, September 30	90	1899, July 1	2,915
1877, September 30	77	1900, November 16	3,128
1879, June 30	93	1901, July 1	3,388
1881, July 1	108	1902, July 1	3,789
1883, July 1	239	1903, July 1	4,200
1885, July 1	214	1904, July 1	4,504
1887, July 1	328	1905, July 1	5,446
1889, July 1	488	1906, July 1	6,242

^a The large increase on July 1, 1891, resulted from the transfer of the Weather Bureau to the Department of Agriculture on that date.

The CHAIRMAN. Here is an item, Mr. Burch, the "American Audit Company, services in 1905, \$77.50." What sort of services were those?

Mr. BURCH. I think Mr. Zappone can answer that better.

Mr. ZAPPONE. I was not then located at the Department, but I understand that it became necessary for the Secretary to look up the financial transactions of the chief of one of the bureaus, and in so doing he had to employ secret-service aid from the outside, such assistance from the Treasury Department not being available at that time. The American Audit Company is really nothing more than a detective agency, and for the services of the people assigned by them to that work the Department had to pay \$77.50.

The CHAIRMAN. He wanted to get an idea as to whether the matter was regular or not?

Mr. ZAPPONE. That is it. I believe that application was made to the Treasury to see if they would have the service performed by secret-service men, but there was no one available, and the information had to be obtained at once.

The CHAIRMAN. Mr. Burch, you do not purchase any supplies, do you?

Mr. BURCH. No, sir. I might say, however, that I am chairman of the committee, or board of awards. If we want to purchase anything, we send out informal bids to various firms who manufacture the lines of goods on which the bids are sent out. When the bids are received they are passed upon by a committee appointed by the Secretary and award made to the bidder who is the lowest and best. That is the only connection I have with that subject.

The CHAIRMAN. Is there a system regarding the matter of the purchase of supplies that has been adopted by some of the Departments of the Government, originated, I think, by a gentleman by the name of Hadley, though I don't know that I have his name right?

Mr. ZAPPONE. I have heard of none.

(Witnesses: Burch, Zappone.)

The CHAIRMAN. Do you have the same method in your Department as that employed in the other Departments?

Mr. BURCH. We have a committee that makes awards in the spring for the annual supplies, and all other supplies purchased during the year that can not be anticipated at the spring meeting are bought on informal contract by sending out informal bids and then they are awarded by this committee.

The CHAIRMAN. The only awards that you speak of are awarded to public bidders?

Mr. BURCH. Yes, sir; after advertisement.

The CHAIRMAN. And the submission of bids?

Mr. BURCH. Yes; the notice is given to the public generally.

The CHAIRMAN. What are informal bids, as distinguished from the others?

Mr. BURCH. Special articles not awarded in the annual award, as explained.

The CHAIRMAN. Do you advertise for those?

Mr. BURCH. We advertise by sending to all manufacturers specifications of what we need and solicit bids on the articles mentioned.

The CHAIRMAN. And then the award is made to the lowest bidder?

Mr. BURCH. To the lowest and best bidder. Not always to the lowest, as the article that they bid on might not comply with the specifications—that is, may not be suitable. In that case the chief of the bureau passes upon the article as to whether it will suit his purposes.

The CHAIRMAN. That is, the bid would either not be in response to the advertisement or else the samples submitted would not be the kind of article you wanted to use? Those would be the two contingencies under which a man would be eliminated from the bidding?

Mr. BURCH. Yes, sir; but usually it is awarded to the lowest bidder.

Mr. ZAPPONE. May I make a statement in that connection?

The CHAIRMAN. Certainly.

Mr. ZAPPONE. Under section 3709 of the Revised Statutes competition is required in the purchase of all supplies and material except in cases of extreme emergency. This section reads as follows:

All purchases and contracts for supplies or services in any of the Departments of the Government, except for personal services, shall be made by advertising a sufficient time previously for proposals respecting the same, when the public exigencies do not require the immediate delivery of the articles or performance of the service. When immediate delivery or performance is required by the public exigency, the articles or service required may be procured by open purchase or contract at the places and in the manner in which such articles are usually bought and sold or such services engaged between individuals.

Several years ago the Department of Agriculture, on account of the technical character of its work and the technical character of many of the supplies it had to use, secured an amendment to that law which permits the purchase of supplies in the open market up to \$50. The amendment is as follows:

That hereafter section 3709 of the Revised Statutes of the United States shall not be construed to apply to any purchases or services rendered in the Department of Agriculture when the aggregate amount involved does not exceed the sum of \$50.

(Witness: Zappone.)

I also submit below a copy of General Order No. 21, issued by the Secretary of Agriculture in 1904, bearing upon this subject:

GENERAL ORDER NO. 21.

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., March 10, 1899.

To the Chiefs of Bureaus and Divisions and other officers, agents, and employees of the Department of Agriculture:

Your attention is invited to a paragraph in the act of Congress approved March 1, instant, making appropriations for this Department for the fiscal year ending June 30, 1900, reading as follows:

"That hereafter section thirty-seven hundred and nine of the Revised Statutes of the United States shall not be construed to apply to any purchase or service rendered in the Department of Agriculture when the aggregate amount involved does not exceed the sum of fifty dollars."

The effect of this enactment is to place upon the Secretary of Agriculture the entire responsibility of determining to what extent, if any, the principles of competition shall be applied in any case where the amount involved is fifty dollars or less.

The advantages of honest competition are, in most cases, too great and too distinctly manifest to be neglected. You are, therefore, advised that hereafter, as heretofore, it will be the policy of the Department to avail itself of these advantages in all cases where competition is practicable. The requirements of paragraph 9b of the Fiscal Regulations will remain in full force and effect, except in so far as they are modified by the next following paragraph (9c).

The Chief of the Supply Division in the Department and the Chief of the Division of Supplies in the Weather Bureau, who are the purchasing officers of the Department, and whose duty it is to prepare all requisitions, are hereby directed to enforce a strict compliance with the regulations in respect to purchases. *Competition must be secured in every case when practicable.*

It should be especially noted that purchases and services are exempted from the operations of sec. 3709 *only* when the *aggregate* amount involved does not exceed fifty dollars. It would, therefore, be clearly an evasion of the law to divide a purchase for the purpose of keeping below the limit named. Congress has granted the Department all that was asked for in this respect, and good faith demands that the representatives of the Department obey the statute in its letter and spirit.

The Chief of the Division of Accounts, for the Department, and the assistant chief, on the part of the Weather Bureau, may, therefore, before passing upon proposed expenditures, require evidence showing that the law and the regulations have been complied with in all particulars.

JAMES WILSON,
Secretary of Agriculture.

The CHAIRMAN. Would that create a condition where orders could be split up in amounts?

Mr. ZAPPONE. Not at all; that is not the purpose of it.

The CHAIRMAN. No such practice as that has ever been adopted by the Department?

Mr. ZAPPONE. No. Under section 3709, as amended in 1894, each year, in the spring, every Department of the Government service advertises in at least six newspapers of the country that proposals will be received for the various articles of supplies required for the departmental service, to be opened on a certain date fixed by the Secretary of the Treasury, and being the same for all Departments. In our Department there is a board of award appointed by the Secretary for the consideration of proposals for annual supplies, as per order of the Secretary, which follows:

(Witness: Zappone.)

UNITED STATES DEPARTMENT OF AGRICULTURE.

OFFICE OF THE SECRETARY,
Washington, D. C., May 1, 1905.

Mr. M. E. FAGAN, Dr. C. O. GOODPASTURE,

Mr. J. E. JONES, Mr. ROBERT SEYBOTH,
Board of Awards.

GENTLEMEN: You are hereby appointed a board of award, in behalf of the United States Department of Agriculture, for the opening of bids, for the examining of samples submitted, and for making recommendations as to awards for annual supplies for the fiscal year ending June 30, 1906. Bids will be opened in accordance with advertisement at 2 o'clock in the afternoon on Thursday, May 4, in the presence of bidders or their attorneys, as provided by section 3710, Revised Statutes of the United States. As soon as practicable thereafter you will carefully prepare schedules of all the proposals submitted. These schedules, when fully completed, together with the proposals, you will deliver to the Chief of the Division of Accounts, who will forward them to the United States Treasury Department, in compliance with the provisions contained in the act of Congress approved January 27, 1894, amending section 3709, Revised Statutes. In making your recommendations you will conform to the requirements of the schedules, avoiding all needless division of contracts and giving careful consideration to the actual needs of the service. In the acceptance of proposals and in the making of your awards you will have in view both excellence of quality and economy in price, not necessarily the lowest bid in each case, but reasons must be furnished to me in each case where the award is not made to the lowest bidder, and you will otherwise fully consider the interests of the Department.

You will consider carefully the instructions to bidders and make awards as nearly as practicable in accordance therewith. You will note carefully any changes that may be made to advantage in the schedules and the methods of submitting samples, and report the same in writing to the Chief of the Division of Accounts, with a view to improving the forms and general plan of securing bids. You will notify all bidders by circular letter of your findings in relation to the proposals submitted by them, respectively. Properly ruled sheets for tabulating bids and printed circulars for notifying bidders will be furnished you by the Chief of the Division of Accounts, with whom you will confer freely concerning work of the board and for whom you will prepare a list of the accepted bidders, giving the aggregate amount awarded to each as a basis for determining the amount of the bond required in each case. The chief clerk will detail such clerical assistance as may be necessary in expediting your work, which should be completed at the earliest practicable date. You are further authorized and directed to call upon the chiefs of the various bureaus and divisions whenever necessary for expert opinion in determining the merits of the different proposals before you; also for the temporary detail of competent persons to aid you in passing upon technical questions relating to the supplies intended for special use in connection with the work of their respective offices, and the said chiefs of bureaus and divisions are hereby required to make such details upon requests from the chairman of your board.

JAMES WILSON, *Secretary.*

By this board the proposals are scheduled, abstracted, and forwarded to the Secretary of Agriculture with recommendation. Under the law they are sent by him to the Secretary of the Treasury, to be there passed upon by a board, created by the statutes referred to, consisting of one of the Assistant Secretaries of the Treasury and Interior Departments and one of the Assistant Postmasters-General. If this board finds, after a comparison of the bids, that one Department is about to pay more than another for standard articles of stationery and miscellaneous supplies, such as fuel, forage, ice, etc., it calls attention to the matter and may direct that new proposals be invited through new advertisements. One year the bids for fuel were very high. In fact, several Departments got no bid at all, owing to a threatened strike. The result was that new bids were ordered and

(Witness: Zappone.)

lower prices were quoted; so that these proposals for supplies are strictly in compliance with the law and are passed upon by this board of assistant secretaries and approved by them. They constitute, I should say, nearly seven-eighths of the supplies used by the Department of Agriculture during the year. The other one-eighth consists of materials and supplies the need for which could not be anticipated. Often they are technical supplies, and even though they might be purchased in the open market under exigency, or where the amount is less than \$50, it is the policy of the Department of Agriculture to invite bids on these informally, thereby securing competition wherever practicable. These informal bids are passed upon by a board of awards, which our chief clerk just referred to, consisting of three members, as per order of the Secretary, which follows:

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., July 1, 1905.

Col. S. R. BURCH,
Chief Clerk of the Department of Agriculture.

Mr. M. E. FAGAN,
Cashier of the Department of Agriculture.

Mr. C. O. GOODPASTURE,
Clerk in the Bureau of Animal Industry.

GENTLEMEN: You are hereby constituted a board of award charged with the duty of opening, examining, and reporting upon informal bids and proposals of all kinds for furnishing supplies and for performing service for this Department, including all the bureaus, divisions, and offices thereof (except the Weather Bureau), during the fiscal year beginning this day and ending June 30, 1906 (see par. 8 to 11, inclusive, of the Fiscal Regulations of the Department of Agriculture).

In the performance of your official duties under this assignment you are authorized to call upon the several chiefs of bureaus, divisions, and offices for information, for expert advice upon questions relating to the character of the supplies or services offered upon bids, and in ascertaining the adaptability of such supplies to the requirements of the service.

You will give careful and equitable consideration to all proposals that shall be placed before you, and you will, without fear, favor, or partiality, recommend such action thereon as will, in your respective judgments, best subserve the Department's true interests.

Very respectfully,

JAMES WILSON, *Secretary.*

When necessary the board secures recommendations from the chief of the bureau or division for which the articles are intended, calls for expert knowledge when required, and make awards accordingly. I also submit the following extracts from the Fiscal Regulations of the Department of Agriculture relative to the purchase of supplies:

Regulation 8. All officers, agents, and other employees of this Department are positively forbidden to make a purchase, to give an order for supplies of any kind, or to incur any expense whatever in connection with the public business without first having obtained a formal written order, requisition, or letter of authorization, signed by the Secretary or other official delegated by him, except in cases of extreme necessity, in which the public property might otherwise be subjected to great danger of loss or damage, or in which the public interests might be liable to suffer serious injury from the delay involved in procuring prior authorization.

Regulation 9. All requisitions must be countersigned by the Chief or Assistant Chief of the Division of Accounts before being sent to dealers. All letters of authority will be drawn in the Division of Accounts. Memoranda should be furnished to that division setting forth in reasonable detail the character, pur-

(Witness: Zappone.)

pose, and amount of each contemplated expenditure for which authority is desired. Every application for a letter authorizing travel must state specifically the character of the business to be transacted and for which the travel is to be performed. Such vague phrases as "on official business," "on business connected with," etc., do not afford data sufficient to determine whether the expenses of the contemplated travel are legally chargeable to the appropriation named in the memoranda.

Regulation 10. In all cases, when practicable, supplies must be procured upon contracts to be made after advertising for proposals, as required by law. The only exceptions to this requirement occur when the exigencies of the service necessitate immediate delivery and in cases where competition is not possible. Competition must be secured in every case when practicable. The Chief and Assistant Chief of the Division of Accounts will, before passing upon a proposed expenditure, require evidence showing that the law and the regulations requiring competition have been complied with in every particular.

Regulation 11. Whenever it shall be found necessary in the Department at Washington, after the contracts for annual supplies have been awarded, to use articles not embraced in any such contract, and when the estimated cost of such articles shall amount to \$1,500 or more, new advertisements should be prepared for publication in newspapers in the usual manner and form. When supplies shall be required the aggregate cost of which shall be estimated at less than \$1,500, advertisement may be made by letters prepared on blank forms provided for that specific purpose inviting proposals, such letters to be mailed or otherwise delivered to a reasonable number of responsible dealers in the goods required. Articles not provided for in any existing contracts, if required for immediate use; if of a special kind, patented articles for instance, and not procurable except from a single source; or if of an estimated value so small as to render advertising for proposals impracticable, may be purchased in open market at the lowest obtainable prices. In every such case, however, the application for a requisition or letter of authorization must state in specific language the character of the exigency that renders the procuring of bids impracticable. The exigency must be stated in writing before the purchase is made. In all cases where an intended purchase is to involve an expenditure of \$50 or more, and it is found to be impossible or impracticable to obtain competitive bids, the following principles should be embodied in an exigency statement, to accompany the application for a purchasing requisition or to be made in explanation of a purchase without competition under a letter of authority, the statement in the latter case to accompany the account:

First. It must be clearly stated and shown that the article, services, or supplies are needed for immediate use, and that the delay necessary for the purpose of obtaining bids would prove injurious to the interests of the Government; and

Second. It must be clearly stated and shown to the satisfaction of the Division of Accounts that the particular article, services, or supplies are the only kind that can be used for the purpose for which they are intended, or can only be procured from the person on whom the requisition is drawn; and

Third. In all cases the statement must be made that the price set forth is the lowest obtainable, is just and reasonable, and was ascertained by correspondence or personal investigation.

All purchases of materials for the furnishing of which contracts have been awarded must be made from the contractors, even if such materials can be procured elsewhere at lower prices than those specified in the contract.

Improvements in the present departmental methods of purchasing supplies have been fully considered by the Keep Commission, and as their recommendations to the President in regard thereto have already been made public, I take the liberty of submitting a copy herewith:

TREASURY DEPARTMENT,
Washington, December 6, 1906.

To the PRESIDENT:

The committee on Department methods submits herewith its report on the standardization and method of purchase of Department supplies.

This subject had much attention from the Dockery Commission in 1893. On its recommendation section 3709, Revised Statutes, was amended so as to pro-

(Witness: Zappone.)

vide that contracts for purchase of Department supplies should go before a board of award, composed of an Assistant Secretary of the Treasury, an Assistant Secretary of the Interior, and an Assistant Postmaster-General, for approval. The purpose of the Dockery Commission in creating the board of award was to secure reasonable uniformity of price and practice in contracts for Department supplies by establishing a board or commission to compare the awards recommended by the various Departments, so that approval might be refused in case an excessive price was to be paid by any one Department, as compared with the others.

While something has been accomplished in securing uniformity of price since 1893, the real purpose of the amendments approved by the Dockery Commission has not been secured. The law still leaves each Department to prepare its own schedule of supplies needed. Each Department publishes its own advertisement, receives its own bids, and makes its own recommendations for awards to the board of award. The schedules prepared in the different Departments differ materially in the qualities of the various articles called for. There has been no attempt at the standardization of supplies. The result is that when the recommendations of the different Departments are scheduled and assembled for consideration by the board of award the schedule is extremely complex, comprising nearly 2,500 different kinds and qualities of supplies.

In most cases the bids are based on samples in the possession of the various Departments, which it is not practicable to produce before the board of award. Thus the different Departments continue to buy different articles for the same purposes, and cooperation between the Departments in reducing the complexity of the schedule and the standardization of supplies is not attained, because the departmental cooperation provided for in the board of award takes place at too late a stage in the process of purchase. The remedy for this condition is an obvious one, and we submit herewith a careful and concise report from our assistant committee on supplies, recommending important and specific changes in the present methods. These changes, with two modifications hereinafter noted, meet our full approval and are earnestly recommended.

Briefly, the plan proposed by the committee is as follows: Provision is made by which the preparation of schedules, advertising for proposals, and making of contracts for the purchase of Department supplies are placed in the hands of a board, to be known as the general supply committee, such board to be under the supervision and control of the Secretary of Commerce and Labor. The head of each Department or independent bureau is to designate one expert employee of his Department or bureau to serve as a member of such a board. The board thus constituted is to purchase the Department supplies heretofore acted upon by the board of award.

In an opinion rendered by the Attorney-General to the President, May 28, 1906, the Attorney-General held that an amendment to the present law would be required to make this change. Such an amendment has been prepared and is submitted herewith.

The report of our assistant committee discloses in only a small degree the great care and labor of the committee in considering this subject. It has had before it the purchasing officers of the various Departments and has compared the qualities and grades of the various articles purchased by them. It has begun and carried about half way to completion a standardized schedule of Department supplies. Its intention was to complete this schedule before submitting its report, but in order that action may be taken at the coming session of Congress it was decided to present the report, showing the plan proposed, before the completion of the standardized schedule. Sufficient progress has been made, however, in the preparation of this schedule to show that the number of grades and qualities of articles purchased for Government use can be greatly decreased.

This will reduce the complexity and the clerical labor involved in the work and secure for the Government supplies of standard quality under properly prepared specifications. Moreover, the purchase of large quantities under the concentrated system may be expected to result in reduced prices. To indicate the lack of standardization under the existing practice we may say that the Government is at the present time purchasing 28 different kinds of ink, 278 different kinds of pens, 11 different kinds of typewriter ribbon, and 132 different grades of pencils. One Department is paying \$1.70 per dozen quarts for ink; another is paying \$3 per dozen quarts. Similar conditions prevail as to many other articles on the schedule.

(Witness: Zappone.)

It may be urged that it does not necessarily follow that the establishment of a general supply committee will result in standardization. Some time ago Congress provided that the purchase of envelopes for all the Departments should be concentrated in the hands of the Postmaster-General. For some years thereafter each Department supplied to the Postmaster-General a list of the different kinds and qualities of envelopes required, and a schedule for purchases, containing specifications for all these different grades and qualities, was prepared in the Post-Office Department. Centralization of purchase, therefore, at first brought no result in the way of standardization, but during recent years this has changed, and the number of grades and kinds of envelopes purchased has been much reduced. Noncommercial sizes, requiring manufacturers to have special machinery, and therefore only obtainable at high prices, have been stricken from the schedule, and the process of standardization still continues. One of the main purposes of the creation of the general supply committee here recommended being to standardize, it is fair to assume that it will perform its duty in this respect. The immense labor already performed by our assistant committee in the preparation of a standardized schedule will be available for the use of the new committee.

Other results to be expected from the concentrated purchase system are improved specifications, drawn so as to require the essential qualities, but not to call for an unnecessary and expensive excellence, as many Government specifications now do.

It is clear that no general purchasing agency to make purchases for the entire Government is practicable. The military departments must obviously have their own methods of purchase, under military organization, developed in time of peace so as to be capable of great expansion in time of war. So, also, it may be necessary that the scientific bureaus of the Government be allowed to purchase, to a considerable extent, their own scientific apparatus and technical supplies. The Departments dealing with public works, needing bulky supplies at a distance from Washington, must continue to purchase them as at present. The Department supplies proper are, however, with few exceptions, bought and delivered at Washington, and are examined here by the Department purchasing officers, although a considerable part of such purchases are afterwards shipped to the outside service. It is these supplies the purchase of which it is proposed to concentrate.

The general supply committee, however, would develop experts whose services could be used to great advantage by purchasing officers, even where the supplies themselves were not purchased directly by the general supply committee. Thus, many officers in the Government service have occasion at times to make purchases, but have not in their offices the necessary technical knowledge to prepare proper specifications therefor. One of the important functions of the general supply committee would be to prepare and supply, in response to the requests of any Government officers, suitable specifications to be used in the purchases of any desired article.

We are of the opinion that it is better to begin the concentrated purchase of supplies by covering a field too small rather than too large. If the concentrated system develops as it should its field of operations can be widened, as the work of the Civil Service Commission has been from time to time extended. Should the central office be overloaded at the start it might result in a want of efficiency at the beginning which would discredit the system. In the field covered by our recommendations there is no doubt in our minds that a centralized system of purchase would from the start secure great advantages and be easily put into operation. We have recommended that the general supply committee be under the jurisdiction of the Department of Commerce and Labor, because of the existence in that Department of the Bureau of Standards. This Bureau is in a position to furnish material assistance in the preparation of standard specifications and in establishing a well-devised system for testing supplies when received.

The two modifications which we desire to make in the report of our subcommittee are as follows:

First. That the Secretary of Commerce and Labor shall appoint the chairman of the general supply committee.

Second. That as legislation is necessary to institute the proposed plan of purchase, provision should be made in such legislation for a reasonable extension of the system from time to time in case it is found to work well.

(Witnesses: Zappone, Cochran.)

To accomplish this result we propose two slight modifications of the amendment to section 3709, proposed by our assistant committee, by inserting therein a provision that the President may, by Executive order, from time to time extend, within reasonable limits, the field of operations of the concentrated purchase system and by providing therein more specifically for the organization of the proposed general supply committee.

Accompanying this report are the following papers:

First. The report of the assistant committee on supplies.

Second. The opinion of the Attorney-General hereinbefore referred to.

Third. The report of the Dockery Commission on this subject.

Fourth. The amendment to section 3709, Revised Statutes, recommended by our assistant committee and modified by us.

Our recommendations are as follows.

First. That the attention of Congress be called to this subject, in order that the necessary legislation may be obtained.

Second. That after such legislation shall be obtained the concentrated purchase system be put in operation by Executive order.

Respectfully,

C. H. KEEP,

LAWRENCE O. MURRAY,

JAMES RUDOLPH GARFIELD,

GLIFFORD PINCHOT,

Committee on Department Methods.

JANUARY 12, 1907.

(Part of testimony given on above date before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF MR. W. E. COCHRAN, PURCHASING AGENT FOR THE POST-OFFICE DEPARTMENT, ACCOMPANIED BY MR. M. W. P. ZANTZINGER, OF THAT DEPARTMENT.

(The witness was sworn by the chairman.)

The CHAIRMAN. Will you please state your official position?

Mr. COCHRAN. I am the purchasing agent for the Post-Office Department.

The CHAIRMAN. How long have you held that position?

Mr. COCHRAN. Since the 1st of July, 1904, when the office was created.

The CHAIRMAN. And before that time were you in the employ of the Department?

Mr. COCHRAN. I was the chief post-office inspector.

The CHAIRMAN. So that for nearly three years you have been engaged in this purchasing department?

Mr. COCHRAN. Yes.

The CHAIRMAN. And had the charge of it?

Mr. COCHRAN. Yes, sir.

The CHAIRMAN. That was from the time when that bureau was established?

Mr. COCHRAN. Yes.

The CHAIRMAN. Our attention has been called to the fact, in connection with our examination of the purchase of supplies by the Agricultural Department, that it was thought by one of the parties interested in that Department that the fact that supplies in some instances were purchased in large amounts deprived people who were situated so that they could produce only smaller quantities of the op-

(Witness: Cochran.)

portunity of competing, and particularly confined the bidding for articles of that character to one or two concerns, and resulted in an increased cost or price to the Department; and it was suggested that the envelopes probably came within that designation; at least that was the view of the party calling it to our attention.

Mr. COCHRAN. Yes.

The CHAIRMAN. I would be glad to have you explain what the facts are in that respect, so far as that is concerned.

Mr. COCHRAN. The law directing and requiring the Postmaster-General to make contracts for envelopes for use of the Departments was passed in 1895. Prior to that time each Department made its own purchases of envelopes just as they do with other supplies, and with reference to the prices paid at that time I have no information. The law had been in operation for ten years before I had anything to do with it, because when I took charge of the office, in July, 1904, the contracts for the fiscal year beginning at that date had already been made. I did not have anything to do with any of the annual contracts for the year beginning July 1, 1904.

The prices that were paid by the respective Departments before 1895, compared with the prices paid in 1896 and 1897, would, in my judgment, be the best basis upon which to ascertain whether that statement is correct.

The CHAIRMAN. What is the practice? For instance, for the purpose of illustration, take the envelope; do we understand that you purchase all the envelopes that are used by all of the Departments?

Mr. COCHRAN. No, sir; but the Postmaster-General makes the contracts under which all such envelopes are purchased.

The CHAIRMAN. To what extent do you make the purchases?

Mr. COCHRAN. Only for the Post-Office Department and the postal service. Each Department and independent office is asked, as they have been asked within the last week, to furnish an estimate of all the envelopes of the different grades and kinds that they would require during the year, and they are requested to have that information to me by the 1st of February of this year. When those figures come in they are combined, all of the different items are grouped and consolidated, so that we get a grand total under each item of the schedule, and then we advertise for the estimated quantity of envelopes in the schedule.

The CHAIRMAN. Then you issue proposals on that basis?

Mr. COCHRAN. There is the proposal under which we are working this year [producing same]. The proposals for next year have not been issued as yet. This, Mr. Chairman, shows the prices paid this year that we secured on those proposals.

The CHAIRMAN. Under these proposals are all the envelopes used by the various Departments contracted for?

Mr. COCHRAN. Yes.

The CHAIRMAN. Take it in the case of envelopes, without taking the time to read the proposal in detail, because you are very much more familiar with it than we would be on a short reading.

Mr. COCHRAN. Yes.

The CHAIRMAN. Under the proposals issued in 1905 and 1906 were they of such a character as to require bids for the total sum?

Mr. COCHRAN. Yes; under each item.

(Witnesses: Cochran, Zantzinger, Zappone.)

The CHAIRMAN. The total sum under each item?

Mr. COCHRAN. Yes; they could be bid for item by item. We could make an award under one item, but we would not have two contractors for the same envelope.

The CHAIRMAN. You have here, roughly speaking, how many items?

Mr. ZANTZINGER. About 250, approximately; 250 items.

The CHAIRMAN. Then you have approximately 250 different kinds of envelopes for which you ask proposals?

Mr. ZANTZINGER. Yes.

The CHAIRMAN. Under the proposals that you issue, any one of those 250 items can be bid for by any concern that desires to enter into the competition; am I right?

Mr. ZANTZINGER. Yes.

The CHAIRMAN. Let me inquire, first, how many contractors did you have for envelopes in the year 1905; one, or two, or how many?

Mr. COCHRAN. We had 9.

The CHAIRMAN. Now, in 1906 how many?

Mr. COCHRAN. Six for 1896, and 7 for 1907.

Mr. ZAPPONE. How many submitted bids, if you please?

Mr. COCHRAN. There were 7 bidders for the 1906 contract and 13 for the 1907 contract. I mean for the contract for the fiscal years ending on June 30, of the years mentioned.

Mr. ZAPPONE. Then the competition is confined to about eight or ten firms, is it not, sir?

Mr. COCHRAN. Yes.

Mr. ZAPPONE. That is what I wanted to bring out.

The CHAIRMAN. There are only eight or ten firms that bid, but is there anything in the form of your proposals that confines it to eight or ten firms?

Mr. COCHRAN. No, sir. We always try to get the very widest competition possible, and make the proposals as attractive as possible.

The CHAIRMAN. I will ask you what the fact is; what is the aggregate number of envelopes which is contracted for by you under your proposals, approximately speaking?

Mr. COCHRAN. Have you that figure in mind, Mr. Zantzinger?

Mr. ZANTZINGER. Seventy millions, approximately.

The CHAIRMAN. Seventy millions?

Mr. ZANTZINGER. Yes.

The CHAIRMAN. In that 70,000,000 envelopes you have 250 different kinds?

Mr. ZANTZINGER. Yes, sir.

The CHAIRMAN. Now, are we to understand that your proposals are so issued that each one of the 250 items that make up the aggregate of 70,000,000 is open to competition to anybody who is capable of furnishing the amount in that item?

Mr. ZANTZINGER. Yes, sir.

The CHAIRMAN. Are we right about that?

Mr. COCHRAN. Yes. How about cloth-lined envelopes; are they all in bulk?

Mr. ZANTZINGER. Oh, no. Item by item.

Mr. COCHRAN. Item by item, all the way through.

The CHAIRMAN. Then this alternative here, found on page 14 of your specifications, applies to all of your 250 classes, and to the character of the 70,000,000. This reads:

Alternative bid for printing in accordance with paragraph 15 of specifications, one impression, one form, one color, and one size.

Then there are "sizes 5 by 11½ and smaller," and "sizes larger than 5 by 11½," and then, under "Quantities," you have "less than 1,000, 1,000 and under 5,000, 5,000 and under 10,000, 10,000 and under 15,000, 15,000 and under 20,000, 20,000 and under 25,000, 25,000 and under 50,000, 50,000 and under 100,000, 100,000 and under 250,000, 250,000 and under 500,000, and 500,000 and over."

Now, do those alternatives apply to all of this aggregate?

Mr. ZANTZINGER. No, sir; to all that are printed. That does not apply to the linen and bond envelopes.

The CHAIRMAN. What proportion of the total would these alternatives apply to?

Mr. ZANTZINGER. About 60,000,000.

The CHAIRMAN. And are the other 10,000,000 all in one class, practically?

Mr. ZANTZINGER. All in one class; yes, sir.

The CHAIRMAN. And that is the largest class—your 10,000,000?

Mr. ZANTZINGER. Yes.

The CHAIRMAN. Are the proposals for the 10,000,000 issued so that they could be bid for other than in the lump sum?

Mr. COCHRAN. They are under the head of special envelopes, at the close, here.

The CHAIRMAN. Now, take these 10,000,000 that you have just referred to. That includes linen and bond?

Mr. COCHRAN. Yes; that is on the last page and the page before the last.

The CHAIRMAN. Yes; linen and bond, and does it include also cloth lined?

Mr. COCHRAN. No, sir; cloth lined may be printed or plain.

Mr. SAMUEL. Take, on page 11, No. 7060. How many do you get?

Mr. ZANTZINGER. Ten millions, approximately.

Mr. SAMUEL. I notice the price of No. 7060 is \$1.33. Is that contract given to one firm?

Mr. ZANTZINGER. Yes.

Mr. SAMUEL. Supposing some firm should bid for 1,000,000 at a less price than \$1.33; would they receive a contract for one or two or three millions, whatever they bid for?

Mr. ZANTZINGER. No, sir.

The CHAIRMAN. Would they be required to furnish 10,000,000?

Mr. ZANTZINGER. Yes; we would not split the item.

The CHAIRMAN. Then these alternatives do not split items?

Mr. ZANTZINGER. Yes.

The CHAIRMAN. That would only apply where the items were within those items?

Mr. ZANTZINGER. Yes.

The CHAIRMAN. Is it not practicable to split items?

Mr. ZANTZINGER. No, sir; I think not.

The CHAIRMAN. Take an item like this No. 7060, which approximates 10,000,000; does that eliminate many of the trade from the bidding on account of their lack of capacity to furnish that large quantity?

Mr. ZANTZINGER. I think not; no, sir. One machine alone—and that is a machine-made envelope—can produce 60,000 envelopes in a day.

The CHAIRMAN. There is no great difficulty, then, in producing the envelopes?

Mr. ZANTZINGER. No man could make the envelopes at that price and make them by hand. He would have to have a machine to make the envelopes, and a machine of that sort will run out 60,000 envelopes in a day, and they figure it on ten hours in a day.

The CHAIRMAN. That is \$1.33 a thousand?

Mr. SAMUEL. Yes.

The CHAIRMAN. Here is No. 7055, 6,600,000; 7060, 8,800,000; 7061, 4,193,000; 7070, 5,042,000. Those, I take it, are the largest individual items?

Mr. ZANTZINGER. Yes.

The CHAIRMAN. Does the Department have to pay a larger price for envelopes in these quantities than they pay for envelopes in a smaller quantity of like character?

Mr. ZANTZINGER. No, sir; the lower the quantity the higher the price.

The CHAIRMAN. That is, they can furnish a larger number of the same kind at a cheaper rate than they can a smaller number?

Mr. ZANTZINGER. Yes; you will get a better price on 10,000,000 envelopes than you will get on 1,000,000 envelopes.

Mr. SAMUEL. Then you throw out all bids less than the number called for in the bids?

Mr. ZANTZINGER. Yes.

Mr. SAMUEL. No matter what the number called for is?

Mr. ZANTZINGER. Yes.

Mr. COCHRAN. There never has been any suggestion made from a prospective bidder that he would like to have that done.

The CHAIRMAN. You mean that they would like to have it split up?

Mr. COCHRAN. No, sir; there never has been any intimation or suggestion that it would be desirable from the bidder's standpoint.

The CHAIRMAN. As I understand you, the envelopes you purchase under the large bids cost the Government less per envelope than those you purchase under the small bids under the existing system?

Mr. COCHRAN. Yes; and I am very certain that if comparison should be made with the prices paid by the different Departments prior to 1895 and the prices paid since that time you will see that the Department's interests were very much subserved by having bids on the combined lot.

The CHAIRMAN. That is to say, when one officer of the Department like yourself has the responsibility of purchasing all the supplies of that kind needed by the various Departments, on account of the large number purchased at one time you are able to get a less rate than you were able to purchase them for before when each Department purchased on its own account and in smaller lots?

MR. COCHRAN. Yes, sir.

The CHAIRMAN. If it would not be too much trouble, would you give the committee just a brief analysis of the prices paid by the various departments prior to the establishment of your department, and then the prices that have been paid since, for the same material, under your department, under this system? That will, of course, give us that information. You may have it right now before you.

MR. COCHRAN. I can perhaps give it to you in print, if it would be satisfactory.

The CHAIRMAN. Then if you have it so you can put it in right now, do so.

MR. ZANTZINGER. If you go to one of the stationery stores in the city and buy a thousand envelopes, they may charge you, for that grade of envelopes, \$1. Now, if you ask for 50,000, or want to purchase 50,000, the price will be considerably less than for 1,000. The quantity affects the price.

The CHAIRMAN. That is true of the dealer; and it is also true of the manufacturer who sells to you?

MR. ZANTZINGER. Yes.

The CHAIRMAN. Does it turn out under this method that you pursue that you actually make your contracts with dealers, or with manufacturers?

MR. ZANTZINGER. With manufacturers.

The CHAIRMAN. As a rule?

MR. ZANTZINGER. As a rule, except for cloth lined and special classes.

The CHAIRMAN. Of course, whoever is the lowest bidder, contractor or dealer, you make your contract with?

MR. COCHRAN. Yes, sir.

The CHAIRMAN. But under your system you deal with the manufacturers?

MR. ZANTZINGER. Yes, sir. On those special items you will find from the contracts almost all Washington dealers. They are plain linen envelopes, high-grade envelopes, for the use of the Secretaries in their special correspondence. We do not generally get bids from Crane and Whiting, from those factories direct, because they have their agents here and prefer to have their bids made through them.

MR. COCHRAN. This is my first report, and I think it will give you the information that you want.

The CHAIRMAN. I notice by your report for the year ending June 30, 1905, that you show a saving in six items, as compared with the method in vogue prior to the establishment of your position, of \$218,297.64, the items being "division letter and package box contracts, \$81,500; rural free delivery furniture contract, \$49,600; service envelope contract, \$4,996.55; general envelopes for Executive Departments contract, \$6,746.09; twine contract, \$65,055, and wrapping paper (facing slips) contract, \$10,400," representing a total of \$218,297.64. With the exception of two items which extend over the four-year period are these all annual contracts?

MR. COCHRAN. Yes.

The CHAIRMAN. But do the contracts cover four years, or does that cover a saving of four years or a single year?

(Witness: Cochran.)

Mr. COCHRAN. In the four-year contracts the saving covers four years.

The CHAIRMAN. So that to get the annual saving we would have to divide it by four?

Mr. COCHRAN. Yes; on those two contracts.

The CHAIRMAN. Which would give the net annual saving of those six items?

Mr. COCHRAN. Yes. The net saving on those six items to be credited to the first year is \$120,972.64, and on the four-year contracts there is a saving of \$32,775 for each of the four years.

The CHAIRMAN. State whether or not those six items include a large proportion in amount of the purchases made, or are they only samples of a very much larger sum?

Mr. COCHRAN. They are the most striking instances, Mr. Chairman. They are the ones, of course, in which the largest savings were made, but they are not all the savings by any means.

The CHAIRMAN. Would you be able to say that in no instance did you increase the cost?

Mr. COCHRAN. No, sir.

The CHAIRMAN. But as a rule you decreased the cost of the preceding year?

Mr. COCHRAN. Yes.

The CHAIRMAN. So that the six items you have just mentioned are the most striking and conspicuous illustrations of economy?

Mr. COCHRAN. They are.

The CHAIRMAN. But you say in no instance was there any increase of cost?

Mr. COCHRAN. No, sir; I can not quite say that. There were not any striking instances.

The CHAIRMAN. No material increases?

Mr. COCHRAN. No; but there were some.

The CHAIRMAN. Have you ever made any computation for the purpose of ascertaining what the aggregate saving was?

Mr. COCHRAN. Yes, I have made it, but I can not give it at this moment.

The CHAIRMAN. Have you it where you can furnish it for the record?

Mr. COCHRAN. Yes.

The CHAIRMAN. If you would do that we would be glad.

(The information requested appears in the following:)

POST-OFFICE DEPARTMENT,
OFFICE OF THE PURCHASING AGENT,
Washington, January 17, 1907.

Hon. CHARLES E. LITTLEFIELD,

*Chairman Committee on Expenditures in the
Department of Agriculture, House of Representatives.*

SIR: Complying with your recent request to be informed as to the number of contracts effected by this office during its first year of organization which had resulted in savings to the Government, and the amount thereof, I have the honor to advise that contracts for furnishing general supplies to the Post-Office Department and the postal service for the fiscal year ended June 30, 1905, were prepared and executed before the establishment of this office (July 1, 1904).

The specifications for furnishing this class of supplies for the fiscal year ended June 30, 1906, contained 480 items. From the fact that there were many new items in these specifications which were not previously under contract, and be-

(Witness: Cochran.)

cause many items of the same general class were differently described from those of the previous year, I am unable to make comparisons as to savings, except on 136 items. It appears that a less price was paid for 29 items in 1905, and a less price was paid for 107 items in 1906, showing a net saving of \$11,446.20 in favor of the contracts entered into under the specifications of 1906 in addition to the \$218,297.64, as stated in detail in my first annual report, thus making a net saving to the Government of \$229,743.84 on the contracts arranged by this office during its first year's existence.

Very respectfully,

W. E. COCHRAN,
Purchasing Agent.

Mr. COCHRAN. Yes; I can not, of course, show as much saving this year as last year or the year before, because when you have made a cut once you can not continue to cut.

The CHAIRMAN. No; you can not keep on, if you have got approximately down to hardpan in the first instance; if you simply hold your own there you are doing well.

Mr. COCHRAN. That is the way I look at it. I judge that if I can make a contract that does not go beyond the provisions of the previous contract I am doing remarkably well nowadays.

The CHAIRMAN. Have you had any protests to your department on the ground that the large quantities in your proposals have operated to practically create a monopoly for one firm?

Mr. COCHRAN. Yes; but in only one of our items, the item of twine. That is the reason that last year and the year before I split up that big twine proposal, so that any mill that furnished twine at all could bid on the quantity that was in the proposals; but we did not get any bids on the small quantities at all. We simply got the bids on the totals, as we had done before.

The CHAIRMAN. It was an open bid?

Mr. COCHRAN. Yes.

The CHAIRMAN. So that in the only instance in which a complaint has been made to your Department you have promptly placed yourselves in a position to obviate any criticism on that account?

Mr. COCHRAN. Yes; and it is the same way this year also. It taxes any mill, the very largest in this country, to furnish our twine; and as a matter of fact our contractor has to utilize two or three mills to get it.

The CHAIRMAN. Yes.

Mr. COCHRAN. And we have tried to get other bidders—to get as many bidders as possible—and to get contracts for small amounts, but without success.

The CHAIRMAN. Do you keep yourselves advised, as a rule, in handling your department and purchasing these supplies, as to the question as to whether or not the Government is paying, under that system of purchasing, more or less than articles of the same character sell for in the open public market?

Mr. COCHRAN. I try to; yes, sir. I know, for instance, that this year the twine we are getting at this moment is furnished at a loss of about 4 cents a pound.

The CHAIRMAN. By the contractor?

Mr. COCHRAN. Yes.

The CHAIRMAN. I suppose that is on account of the increase of price since the making of the contract?

Mr. COCHRAN. Yes.

The CHAIRMAN. What do you find to be the fact with reference to your contracting generally? Are you able to get your contracts at about the market level, at the wholesale rate, or are you above or below?

Mr. COCHRAN. My experience is that the Government is a cheaper buyer than a commercial buyer outside, as a rule.

The CHAIRMAN. That is stated as a result of your investigations of the conditions under which these articles are sold to others?

Mr. COCHRAN. Yes. For instance, we buy furniture at a cheaper rate than any householder could buy it in Washington.

The CHAIRMAN. The householder would buy at retail?

Mr. COCHRAN. Yes; the householder would buy at retail, of course; but the business men say that as a rule they make cheaper prices to the Government than to the customer. Some of them say that it is absurd and they should not do it; but they do, and will probably continue to do that.

The CHAIRMAN. Does your department purchase all kinds of supplies?

Mr. COCHRAN. Yes, sir.

The CHAIRMAN. Typewriters and all things of that sort?

Mr. COCHRAN. Yes.

The CHAIRMAN. Take, for instance, the item of typewriters; are you able to get lesser rates on your typewriters?

Mr. COCHRAN. We get less rates.

The CHAIRMAN. You get less rates on typewriters?

Mr. COCHRAN. We get approximately 10 and 10 off, and sometimes more than that.

The CHAIRMAN. Less than the market wholesale rate?

Mr. COCHRAN. I do not know that I should say the wholesale rate, but from their regular rate.

The CHAIRMAN. The retail rate?

Mr. COCHRAN. Yes.

The CHAIRMAN. From the rate at which the machine sells in the market?

Mr. COCHRAN. Yes. Of course typewriters—

The CHAIRMAN. I only used that as an illustration.

Mr. COCHRAN. Yes. I do not think typewriters are usually sold at wholesale. The typewriter companies have agencies in the different places which are expected to sell at regular fixed prices.

The CHAIRMAN. That is, they do not job them?

Mr. COCHRAN. No, sir; I do not think they do. They distribute them through their own agencies.

The CHAIRMAN. In the case of articles that are jobbed, and I presume you are in the market more or less for articles of that character, do you get for the Government practically the jobbers' prices?

Mr. COCHRAN. I think we do; sometimes less.

The CHAIRMAN. That is your opinion on such of it as you have investigated?

Mr. COCHRAN. Well, I—

The CHAIRMAN. That is, that you keep advised about?

Mr. COCHRAN. Yes.

The CHAIRMAN. Of course, you can not expect to keep tab on everything.

(Witnesses: Cochran, Zantzinger, Zappone.)

MR. COCHRAN. No.

The CHAIRMAN. I do not think of anything further.

MR. ZANTZINGER. I would like to invite attention here to item 7250.

The CHAIRMAN. That is 25,000, estimated quantity.

MR. ZANTZINGER. Yes. The price printed per thousand is \$1.04. Now, compare that with item 7030, 89 cents per thousand printed.

The CHAIRMAN. They are just about the same size.

MR. ZANTZINGER. Yes. How many are estimated?

The CHAIRMAN. Nine hundred and seventy thousand five hundred.

MR. ZANTZINGER. Now, I will ask you to notice the difference in price of those two envelopes. They are of the same quality, but different in color only. Item 7250 is used exclusively by the Agricultural Department, and the color would not make that difference in the price.

The CHAIRMAN. What is the difference in price?

MR. ZANTZINGER. One is \$1.04 and the other is 89 cents. That is 15 cents a thousand difference in price.

The CHAIRMAN. And that you attribute to the small number purchased in the one case?

MR. ZANTZINGER. The small quantity purchased.

The CHAIRMAN. Professor Moore, my recollection is, referred to a letter that he had from some concern making some statement about this matter of large amounts being purchased in a lump sum, and I would like to have the Professor submit that letter, if he has it handy where he can get it, to Mr. Cochran, so that, if there is any occasion, we can take that matter up and look into it and see what, if any, more examination should be made in relation to it.

MR. ZAPPONE. He said that he would do it, and I will see that the correspondence is furnished.

MR. SAMUEL. You do not think that matter of the difference in color ought to make that increase in the price?

MR. ZANTZINGER. No, sir; the color would not make a difference of 5 cents at the highest, and that would be putting a very high figure on that.

The CHAIRMAN. So that we can get an illustration on the record, I wish you would give, say, three or four typical instances of large amounts, with the prices, and then three or four typical instances of smaller amounts of the same quality and size, so that we can have an illustration of the difference in price which is apparently attributable to the number under the contract.

MR. COCHRAN. Do you want a letter to that effect?

The CHAIRMAN. No; I will have Mr. Zantzinger give us that right here, if he can.

MR. SAMUEL. What is the object of having the difference in color?

MR. ZANTZINGER. Principally for identification in distribution.

MR. SAMUEL. Have you instances of that in other departments, also?

MR. COCHRAN. I think the Secretary of Agriculture wanted those envelopes for his reports on cotton statistics, so that they could be identified immediately when they came in.

MR. ZAPPONE. Yes; so that the postmaster here at Washington could pick them out readily, and send them at once to the Department in a confidential pouch, under lock and key.

(Witnesses: Cochran, Zantzinger, Zappone.)

MR. COCHRAN. That is the only instance that I know of.

The CHAIRMAN. I wish you would take three instances of the same kind, taking the largest number of envelopes contracted for, and take three instances of smaller quantities of the same kind of envelopes, and give us those so that we can see what the difference of price is that is in your judgment attributable to the difference in the number purchased, in each instance.

MR. ZANTZINGER (after examination of document). Compare item 7025, at 79 cents a thousand, 5,278,000 estimated for, with item 7130, 201,500 estimated for, at 84 cents per thousand.

Compare item 7040, 60,000 estimated for, at \$1.39, with item 7140, 35,000 estimated for, at \$1.42.

Compare item 7065, with 2,703,500 estimated for, at \$1.35 per thousand, with item 7220, 310,000 estimated for, at \$1.59 per thousand.

The CHAIRMAN. Now, in these items you have given, the only substantial distinction between the various kinds of envelopes is the quantity furnished?

MR. ZANTZINGER. The quantity furnished, and the color; but the color will not make a very great difference in the price of the envelopes.

The CHAIRMAN. That only applies to two kinds?

MR. ZANTZINGER. Yes, sir; two kinds.

The CHAIRMAN. And as to the other kinds, there is in substance no distinction except that of the quantities furnished?

MR. ZANTZINGER. There is practically no distinction except as to the quantities furnished.

The CHAIRMAN. That is all. We are very greatly obliged to you.

AFTERNOON SESSION.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
January 12, 1907.

The committee reconvened at 1.30 o'clock p. m., Hon. Charles E. Littlefield in the chair.

STATEMENT OF MR. A. ZAPPONE, CHIEF OF DIVISION OF ACCOUNTS AND DISBURSING CLERK, DEPARTMENT OF AGRICULTURE.

MR. ZAPPONE. Before proceeding further, if it is agreeable to the committee, I would like to explain briefly the manner in which the various bureaus and independent divisions of the Department of Agriculture are authorized by the Secretary to incur expenses against the appropriations made by Congress for their use from year to year. Under the law (33 Stat. L., 3679) the appropriations made by Congress for contingent expenses or other general purposes must be apportioned by the heads of the several Departments at the beginning of each fiscal year, to prevent undue expenditures in one portion of the year that may require a deficiency later to complete the service of the fiscal year.

The only case in which a deficiency is permissible under the law is when it is waived in writing by the head of the Department—that

(Witness: Zappone.)

is, if the chief of a bureau or of a division looks ahead and sees that the amount appropriated by Congress for some important project or experiment will not be enough for that purpose, he can take it up with the head of the Department, and if the head of the Department feels that it is important enough to create a deficiency he will authorize the chief of the bureau in writing to do so, with the view of later submitting it to Congress, as provided for in the law I have quoted. It is a penal offense for a chief of bureau to incur a deficiency in any other manner.

Mr. SAMUEL. By the head of the Department you mean the Secretary?

Mr. ZAPONE. I mean the Secretary, always.

In the latter part of June, 1905, the Secretary of Agriculture apportioned the amounts for use of the various bureaus and divisions in the Department of Agriculture for the fiscal year 1906, the fiscal year now under discussion, as per statement herewith, which I would like to submit as an exhibit. This is the original statement over the Secretary's signature, and with permission of the committee I will have a copy made and submit the copy as an exhibit. [Exhibiting statement to the committee.] I will pass this to the chairman, so that he can see it.

(Exhibit mentioned above follows.)

OFFICE OF THE SECRETARY, June 24, 1905.

As required by the law (33 Stat. L., 3679), I hereby authorize the following quarterly allotments of the appropriations for the fiscal year ending June 30, 1906, for the use of the bureaus and divisions named. The liabilities incurred against the allotments must not exceed the amount authorized for any quarter, without my written waiver, unless there is a balance from the preceding quarter or quarters. In such cases the balances are added to the amount allotted by me for the next and succeeding quarters, and become available for use of the bureau or division controlling the appropriation. The full amount of letters of authorization and agreements must be charged as a liability against the allotment for the quarter in which issued. Leases may be charged in quarterly installments.

JAMES WILSON, Secretary.

	Appropriations for 1906.	Amount allotted for first quarter.	Amount allotted for second quarter.	Amount allotted for third quarter.	Amount allotted for fourth quarter.
Salaries, Department of Agriculture, officers and clerks.....	\$723,010.00	\$180,752.50	\$180,752.50	\$180,752.50	\$180,752.50
Salaries, extra labor.....	10,000.00	3,500.00	3,000.00	2,000.00	1,500.00
<i>Bureau of Animal Industry.</i>					
General expenses.....	\$1,429,020	1,456,520.00	399,300.00	399,400.00	399,400.00
Animal breeding and feeding.....	25,000				
Rent of buildings.....	2,500				
<i>Bureau of Plant Industry.</i>					
Vegetable pathological investigations.....	\$139,640	145,640.00	40,651.60	38,619.80	32,996.20
Rent of building.....	6,000				
Vegetable pathological investigations, 1905-6.....	10,000.00	10,000.00	3,879.20	7,559.80	7,040.20
Grain investigations.....	25,000.00				6,520.80
Pomological investigations.....	33,640	35,640.00	11,916.00	9,912.00	7,908.00
Rent of building.....	2,000				
Botanical investigations and experiments.....	60,840	63,840.00	20,000.00	17,115.00	14,565.00
Rent of building.....	3,000				
Grass and forage-plant investigations.....	37,160	39,660.00	12,670.50	10,833.50	8,996.50
Rent of building.....	2,500				

(Witness: Zappone.)

	Appropriations for 1906.	Amount allotted for first quarter.	Amount allotted for second quarter.	Amount allotted for third quarter.	Amount allotted for fourth quarter.
<i>Bureau of Plant Industry—Continued.</i>					
Experimental gardens and grounds, Department of Agriculture.....	\$15,320.00	\$4,623.80	\$4,499.10	\$3,566.40	\$2,631.70
Experimental gardens and grounds, 1905-6.....	5,000.00	5,000.00	-----	-----	-----
Arlington experimental farm.....	20,000.00	6,200.00	5,400.00	4,600.00	3,800.00
Tea-culture investigations.....	8,500.00	2,366.50	2,205.50	2,044.50	1,883.50
Purchase and distribution of valuable seeds..... \$195,140	242,920.00	104,034.35	81,947.70	34,098.55	22,839.40
Foreign seed and plant introduction..... 37,780					
Repairs to building..... 10,000					
Investigating production of domestic sugar.....	7,500.00	2,154.00	1,968.00	1,782.00	1,596.00
<i>Forest Service.</i>					
Salaries, Forest Service..... \$81,960	875,140.00	230,785.00	220,000.00	212,177.00	212,178.00
General expenses, Forest Service..... 768,180					
Rent of buildings..... 25,000					
<i>Bureau of Chemistry.</i>					
Laboratory, including \$3,000 for table sirup.....	130,920.00	36,730.00	34,980.00	34,980.00	24,230.00
<i>Bureau of Soils.</i>					
Soil investigations, including \$4,000 for rent of building.....	170,000.00	60,000.00	35,000.00	35,000.00	40,000.00
<i>Bureau of Entomology.</i>					
Entomological investigations, including \$2,500 for moth investigations.....	68,060.00	21,633.00	16,793.00	14,879.00	14,765.00
<i>Bureau of Biological Survey.</i>					
Biological investigations.....	44,420.00	15,000.00	13,000.00	8,420.00	8,000.00
Publications, Department of Agriculture, Farmers' Bulletins..... \$98,750	132,250.00	30,000.00	28,750.00	20,000.00	20,000.00
Artists, etc..... 3,500					
Labor, etc..... 30,000					
<i>Bureau of Statistics.</i>					
Collecting agricultural statistics..... \$93,900	98,800.00	26,000.00	24,000.00	23,000.00	20,900.00
Foreign market investigations..... 4,900					
Library, Department of Agriculture.....	8,040.00	3,000.00	2,500.00	1,540.00	1,000.00
Contingent expenses, Department of Agriculture.....	35,000.00	10,000.00	10,000.00	8,000.00	7,000.00
Contingent expenses, 1905-6.....	2,000.00	2,000.00	-----	-----	-----
<i>Agricultural Experiment Stations.</i>					
Agricultural experiment stations (\$794,660)..... \$21,660	74,660.00	5,000.00	5,000.00	5,000.00	5,660.00
Stations of Alaska, including \$3,000 for the purchase of live stock..... 18,000					
Stations of Hawaii..... 15,000					
Stations of Porto Rico..... 15,000					
Farmers' institute..... 5,000					
Nutrition investigations.....						20,000.00	5,500.00	4,800.00	4,800.00	4,900.00
Irrigation investigations.....	74,200.00	24,000.00	13,100.00	18,000.00	19,100.00
Public-road inquiries.....	37,660.00	9,800.00	10,200.00	8,660.00	9,000.00
Cotton boll weevil investigations:					
Bureau of Plant Industry..... 105,556	190,000.00	94,289.50	44,833.50	31,560.50	19,316.50
Bureau of Entomology..... 84,444					
Building, Department of Agriculture..... 250,000	960,000.00	950,000.00	-----	-----	-----
culture..... 700,000					
Total.....	5,719,700.00	-----	-----	-----	-----

(Witness: Zappone.)

	Appropriations for 1903.	Amount allotted for first quarter.	Amount allotted for second quarter.	Amount allotted for third quarter.	Amount allotted for fourth quarter.
<i>Weather Bureau.</i>					
Salaries, Weather Bureau.....	\$191,430.00	\$47,857.50	\$47,857.50	\$47,857.50	\$47,857.50
Fuel, lights, and repairs, Weather Bureau.....	10,000.00	7,000.00	1,000.00	1,000.00	1,000.00
Contingent expenses, Weather Bureau.....	10,000.00	5,000.00	1,000.00	2,000.00	2,000.00
Salaries, station employees.....	531,550.00	170,000.00	120,000.00	131,550.00	110,000.00
General expenses, Weather Bureau.....	562,010.00	350,000.00	100,000.00	50,000.00	62,010.00
Buildings, Weather Bureau.....	53,000.00	40,000.00	5,000.00	5,000.00	3,000.00
Cables and land lines, Weather Bureau.....	35,000.00	32,000.00	1,000.00	1,000.00	1,000.00
Total, Weather Bureau.....	1,392,990.00				
Grand total.....	7,112,690.00				

At the same time that these allotments are made by the Secretary he cautions the chiefs of the various bureaus and independent divisions, in writing, that they must not make recommendations for expenditures which will exceed the amounts allotted to them for each quarter, and must otherwise follow strictly the provisions of the law.

In three of the large bureaus of the Department, namely, the Weather Bureau, the Forest Service, and the Bureau of Soils, the Secretary, by a general letter of authorization issued by him on July 1, 1905, authorized the chiefs of those bureaus to expend the appropriations made for the use of their bureaus in accordance with these allotments, meaning expenditures for traveling and for the purchase of supplies and materials. This was done in view of the fact that these three bureaus are located some distance from the main Department, and have a very large field force traveling around from place to place, or have a great many stations, as in the case of the Weather Bureau, necessitating much travel.

It is absolutely necessary that the chiefs of those bureaus have a general letter of authority from the Secretary, which, as I stated, is issued by him on the 1st day of July each year, permitting them to make these changes when necessary, and also to issue such orders for the purchase of supplies and materials as may be necessary for use of their bureaus. This general authority that I speak of limits the amounts, however, that each chief of bureau may authorize, to \$100. Anything over \$100 must be submitted to the Secretary for his approval.

In addition to the bureaus that I have named, the Bureau of Plant Industry, the Bureau of Statistics, and the Bureau of Chemistry were also authorized by the Secretary on July 1, 1905, to issue and approve orders for the purchase of supplies for amounts not exceeding \$100. That was done on account of the very technical character of the supplies that these bureaus use, and the necessity of having a scientific man or man with special training negotiate for and purchase the supplies. The supplies are not under the annual contracts, as a rule, and are of such a character that they can not be procured by the chief of our supply division of the Department, because he has not that expert and skilled knowledge that is necessary. These requisitions are submitted, however, to the disbursing office, after having been approved by the chief of bureau and before mailing to the various contractors, to see that they are in strict conformity with the law and

with the fiscal regulations of the Department. The disbursing officer has also been instructed by the Secretary to bring to his attention any expenditure that may seem of an extravagant character.

The bureaus that I have just named are all of the bureaus that are furnished by the Secretary with what we will call general authority for conducting the business of their bureaus. The balance of the Department we will class under another head. To give an illustrative case: When any other division or bureau of the Department requires some supplies in connection with the work of their office—say, for instance, the purchase of 25,000 envelopes—the chief of that bureau will make request therefor, on printed form adopted for such purposes, asking that the supplies be purchased. This form is addressed to the chief clerk of the Department, who scrutinizes the request closely, and if he approves of the purchase, sends it to the chief of the supply division of the Department to make the purchase, if not in stock.

For envelopes, as they would be under a contract made by the Postmaster-General, he would simply prepare an order on the proper contractor for the goods in question which, when received, he would send to the bureau concerned. These orders for supplies, after being prepared by the chief of the supply division, are also sent to the disbursing officer to see that they are in conformity with the law and the fiscal regulations of the Department. The disbursing officer also stamps the appropriation on them indicating the appropriation properly chargeable with the expense and then sends them to the Secretary for his approval, so that the Secretary of Agriculture approves the orders for purchase of supplies for the entire Departments, except the large bureaus which I have named, and to which he has extended a general authority.

I wish to call the attention of the committee to the manner in which traveling expenses are authorized in the Department of Agriculture. When travel becomes necessary, the chief of a bureau or a division, to which no general letter of authority has been issued, makes request in writing to the Secretary and states in specific terms why the travel is necessary. The Secretary then has issued what is known as a letter of authorization directing the employee in question, through the chief of his bureau, to perform the journey. These letters of authorization at the end of each quarter are bound and sent to the accounting officers of the Treasury for the purpose of auditing the accounts. I would like to have inserted here, as an exhibit, regulation No. 12 of the fiscal regulations of the Department of Agriculture in regard to traveling expenses.

REG. 12. Before incurring any expense for traveling upon the business of the Department an officer or employee must be furnished with specific written authority to perform the particular journey, or journeys, to which such expenses relate, which authority must be issued by the Secretary of Agriculture (except in the case of employees of the Weather Bureau, who will receive letters of authorization from the Chief of that Bureau). In the absence of such authority no claim for reimbursement of traveling expenses will be allowed, except in cases of actual and extreme emergency.

All travel performed upon Department business must be by the shortest practicable routes and without any unusual or unnecessary delays. Proper and legitimate traveling expenses are those usual and essential to the comfort of travelers. * * *

(Witness: Zappone.)

I also submit as an exhibit regulation No. 16, for telegraphing, that is the use of the telegraph by employees of the Department, to show that they have been properly cautioned in regard to the indiscriminate use of the telegraph.

REG. 16. The telegraph must be used sparingly, and only when the delay in using the mail would be injurious to the public interests. Care should be taken to omit all unnecessary words. In a message from one official or employee to another titles should not be used, and in a great many cases the names of the parties in both address and signature may be limited to single words. Numbers should be expressed in words, not in figures. * * *

I think it also proper to invite the attention of the committee at this time to the following clause which appears on the last page of the appropriation act of this Department for 1906:

And the Secretary of Agriculture is hereby authorized to make such appointments, promotions, and changes in salaries, to be paid out of the lump funds of the several bureaus, divisions and offices of the Department as may be for the best interests of the service: *Provided*, That the maximum salary of any classified scientific investigator in the city of Washington, or other employee engaged in scientific work, shall not exceed three thousand dollars per annum.

And the Secretary of Agriculture is hereby authorized and directed to pay the salary of each employee from the roll of the bureau, independent division, or office in which the employee is working, and no other: *Provided, however*, That details may be made from the office of the Secretary when necessary and the services of the person whom it is proposed to detail are not required in that office; and he is further authorized and directed to submit to Congress each year a statement covering all appointments, promotions, or other changes made in the salaries paid from lump funds, giving in each case the title, salary, and amount of such change or changes, together with reasons therefor.

That law, you will notice, limits the salary of scientists in the city of Washington payable from lump-sum appropriations. In the summary of the report that has been prepared for the use of the committee a statement will be found of the amount paid under lump-sum appropriations for salaries in and out of Washington. It aggregates nearly \$3,500,000. It not only makes proper provision for such salaries, but it also limits the amounts that any scientist in the city of Washington may receive; that is, it provides that the highest salary for scientific work in the city of Washington shall not exceed \$3,000 per annum in any case. As a result the Department loses many of its best men. The maximum salary should be increased. I mention this now, as the salary paid to some scientist from the lump funds may be touched upon in this discussion.

You will also find in the summary in the back part of the report an item for rent of office quarters. In making up the groups for the report we did not differentiate between rents in the District of Columbia and rents outside of the District of Columbia.

The CHAIRMAN. You refer now to the item on page 293, of \$124,729?

Mr. ZAPPONE. One hundred and twenty-four thousand dollars; yes, sir; that is it. That refers to rents in the District of Columbia and outside of the District of Columbia. For the information of the committee I would like to have inserted here as an exhibit, the amount paid for rent in the District of Columbia during the past fiscal year—1906. The total amount was \$46,588.96.

(Witness: Zappone.)

BUILDINGS UNDER LEASE IN THE DISTRICT OF COLUMBIA.

The following statement shows the buildings under lease in the District of Columbia on June 30, 1906:

	Rate per annum.
Office of Secretary: Rooms for storage, 611 Maryland avenue SW.....	\$300.00
Bureau of Animal Industry: Laboratories and offices, 1358 and 1362 B street SW.....	2,400.00
Bureau of Plant Industry:	
Vegetable pathological and physiological investigations, laboratories and offices, 1304-1306 B street, SW, 1308 B street SW., and 201 Thirteenth street SW.....	\$3,720.00
Botanical investigations and experiments, laboratories and offices, 224 Twelfth street SW.....	3,000.00
Grass and forage plant investigations, offices, 1346 B street SW.....	1,500.00
Purchase and distribution of valuable seeds, seed warehouse, 221 Thirteen-and-a-half street SW.....	3,000.00
Pomological investigations, offices, 203, 205, 207, 207½, and 209 Thirteenth street SW.....	2,040.00
	13,260.00
Forest Service, offices and storage rooms:	
Atlantic Building, 930 F street NW.....	14,778.96
Washington Loan and Trust Building, Ninth and F streets NW., 2 rooms.....	570.00
913 E street NW.....	270.00
928 Baptist alley.....	120.00
Building in Baptist alley.....	270.00
Twenty-sixth and D streets NW.....	120.00
	16,128.96
Bureau of Chemistry: Laboratories and offices, 200-202 Fourteenth street SW, and 206 Fourteenth street SW.....	2,800.00
Bureau of Soils: Laboratories and offices, 208, 212-214 Thirteenth street SW.....	3,920.00
Bureau of Entomology: Offices 904 B street SW.....	720.00
Division of Publications:	
Document rooms, 215 Thirteenth street SW.....	\$5,000.00
Storage room, 916-918 Pennsylvania avenue NW.....	60.00
	5,060.00
Office of Public Roads: Laboratories and offices, 237 Fourteenth street SW.....	2,000.00
Total.....	46,588.96

BUREAU OF ANIMAL INDUSTRY.

JANUARY 12, 1907.

(Part of testimony, given on above date, before Committee on Expenditures in the Département of Agriculture.)

STATEMENT OF DR. ALONZO D. MELVIN, CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE.

(The witness was sworn by the chairman.)

The CHAIRMAN. You are the Chief of the Bureau of Animal Industry?

Doctor MELVIN. Yes.

The CHAIRMAN. How long have you been the Chief?

Doctor MELVIN. Since December of 1905.

The CHAIRMAN. Since December, 1905. And how long have you been connected with the Bureau?

Doctor MELVIN. Since December, 1886.

The CHAIRMAN. And in what capacity during that time?

Doctor MELVIN. First as a veterinary inspector, and in 1895 as chief of the inspection division in Washington, and then in January, 1899, as Assistant Chief of the Bureau.

The CHAIRMAN. Now, you may state generally of what your Bureau has charge—that is, the sort of work that comes under your direction.

Doctor MELVIN. May I read from some printed matter that I have here?

The CHAIRMAN. State it in your own way, either reading or stating it from memory.

Doctor MELVIN. Under the act approved May 29, 1884, the Bureau was established. The wording of that act was:

An act for the establishment of a Bureau of Animal Industry, to prevent the exportation of diseased cattle, and to provide means for the suppression and extirpation of pleuro-pneumonia and other contagious diseases among domestic animals. (Public—No. 41.)

Since that time there has been added to the duties of the Bureau the inspection of meat products and of live cattle exports, the inspection of imported animals, the work in dairying, and animal husbandry. I suppose you refer to last year, not this year?

The CHAIRMAN. No; bring it right up to date.

Doctor MELVIN. Also the investigations regarding various diseases affecting domestic animals and the distribution of such information, and the eradication of the tick producing Texas fever in cattle.

(Witnesses: Melvin, Zappone.)

The CHAIRMAN. The great bulk of the expenditures in your department relates to services out of Washington?

Doctor MELVIN. Yes.

The CHAIRMAN. That is necessarily so, of course, on account of the work in which you are engaged?

Doctor MELVIN. Yes.

The CHAIRMAN. I find here, "Total amount paid for salaries in Washington, \$83,595.62."

Mr. ZAPPONE. If you will turn to page 99 you will find a summary; it is at the top of the page.

The CHAIRMAN. Yes. Lump-fund salaries in Washington, \$83,595.62, and lump-fund salaries out of Washington, \$1,145,053.65. Then we have statutory salaries, \$78,208.29. Where are those distributed, in and out of Washington or altogether in Washington?

Doctor MELVIN. The statutory salaries?

The CHAIRMAN. Yes.

Doctor MELVIN. They are all, I believe, in the city of Washington. I do not think there is an exception to that.

The CHAIRMAN. The aggregate expense of the Bureau is something like a million and a half of money?

Doctor MELVIN. For last year; yes sir.

Mr. ZAPPONE. It might be well to state that of that sum there will be a balance to be turned back into the Treasury of \$92,647.

The CHAIRMAN. So that you have kept well within your appropriation?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Who fixes the salaries under the lump-sum appropriation?

Doctor MELVIN. The Secretary, upon the recommendation of the chief of the Bureau.

The CHAIRMAN. So that that is upon your recommendation?

Doctor MELVIN. Yes.

The CHAIRMAN. So that in the first instance you determine the amounts, and then that is subject to the approval of the Secretary?

Doctor MELVIN. Yes.

The CHAIRMAN. How many classes of clerks have you?

Doctor MELVIN. We have four, I think.

The CHAIRMAN. And their salaries range from what?

Mr. ZAPPONE. Are you referring to the salaries in the city of Washington, the statutory salaries, or the lump-fund salaries?

Doctor MELVIN. That will qualify my answer somewhat, according to which you refer to.

The CHAIRMAN. First, in relation to the salaries in Washington.

Mr. ZAPPONE. Statutory salaries.

Doctor MELVIN. Of clerks?

The CHAIRMAN. Yes.

Doctor MELVIN. There are four classes.

The CHAIRMAN. The salaries are what, beginning with the lowest?

Mr. ZAPPONE. If I may be permitted to state, the lowest is \$600.

Mr. SAMUEL. That would make more than four classes.

Doctor MELVIN. I think there are only four provided for under the civil-service regulations.

The CHAIRMAN. What is the distinction between the classes?

(Witness: Melvin.)

Doctor MELVIN. The practical distinction is the character of the work performed by the clerks themselves.

The CHAIRMAN. The difference between the classes in compensation is \$200 in each instance?

Doctor MELVIN. Not in all cases; no, sir. We have clerks at \$600, \$720, \$840, \$900, and \$1,000, and after a thousand the differences are \$200 up to \$1,800. I think we have employees at all of those sums.

The CHAIRMAN. So that is a uniform classification?

Doctor MELVIN. The prevailing custom in this Bureau has not been to fix their salaries with reference to the class so much as regarding the character of the work performed by the employee and the length of service.

The CHAIRMAN. Now, what is the distinction between the duties performed, or the work performed, by your clerks under \$1,000, as compared with your clerks at \$1,000; that is, start right in, beginning with the lowest class. What do they do?

Doctor MELVIN. The simpler forms of clerical work, such as making book entries and work of that sort, which does not require a very great clerical education. Then usually clerks are appointed at \$1,000 or less, and then as we determine their proficiency their pay is increased.

The CHAIRMAN. What kind of work does the clerk at a thousand dollars do; in what way does the work that he does differ in kind and character from the work performed by your clerks in the lower grades, below that?

Doctor MELVIN. As I stated, the duties of the clerks at the lower salaries are very simple in character, and they increase until they reach the character of assistants in executive work—that is, assisting those in charge of the various divisions.

The CHAIRMAN. What kind of assistance does your thousand-dollar man render that is not rendered by the clerk below him. That is, what things does the thousand-dollar man do that the man below him does not do? Is there any increase in the scope of his duties?

Doctor MELVIN. Some. The work that they do is of a generally higher character. And then again, his additional compensation is more on account of his length of service in the Department.

The CHAIRMAN. Now can you make that any more clear?

Doctor MELVIN. There is not so great a distinction between clerks of those grades as there would be between those of that grade and a higher grade.

The CHAIRMAN. Take your \$1,200 clerk. What duties does the \$1,200 clerk discharge that are additional to the duties discharged by your \$1,000 clerk?

Doctor MELVIN. Of course, the character of the work to which these clerks are assigned varies a great deal in the different divisions to which they belong. For instance, take the inspection division, which is probably the largest division in the Bureau, and the higher class clerks—that is, ranging from \$1,200 to \$1,400—would be assigned to that work, the recording of reports of inspection, transferring these records into books of record; and they would be capable of determining from the nature of these reports whether there was anything special which should be called to the attention of the chief of the division.

(Witness: Melvin.)

The CHAIRMAN. Does a \$1,000 man do that same kind of recording?

Doctor MELVIN. He might, for a time. He might be assigned to that for a time, and then later increased in salary. We try as far as possible, before making increases, to determine whether the person is suitable for a higher class of work, and if he is, we try to regulate his salary accordingly.

The CHAIRMAN. So that during a portion of a \$1,000 man's service he makes these same records that you have referred to as being made by the \$1,200 and \$1,500 men?

Doctor MELVIN. Yes. When we think a man is capable of doing a higher class of work, and we have that higher class of work for him to do, we would assign him at his first salary until we could determine whether he could fill the position or not.

The CHAIRMAN. Is there anything that differentiates the service performed by the \$1,200 and \$1,400 men as a higher class of service than this matter of making records and making suggestions to their superiors of important matters that they discover in the records? I understand you to say that is it. Is there anything but that?

Doctor MELVIN. Our stenographers are designated here as stenographers and clerks. They are clerks and stenographers, and do both clerical and stenographic work.

The CHAIRMAN. You do not have any designation of stenographers per se?

Doctor MELVIN. I do not think we do. In obtaining a large part of our clerks, their ability as stenographers is almost secondary to their clerical ability, though not in all cases. In some cases the stenography predominates, but in others the clerical work predominates; so that in most cases we use these people as clerks and stenographers.

The CHAIRMAN. Are they practically all stenographers?

Doctor MELVIN. I should think probably one-third of them are qualified in stenography. Perhaps there are more than that.

The CHAIRMAN. Is that when they begin?

Doctor MELVIN. Yes.

The CHAIRMAN. When they start in, that proportion of your clerks are stenographers?

Doctor MELVIN. Yes, sir. Take it in our laboratories. There is a great deal of dictation which these stenographers have to take which is very technical in its character, and as they become proficient we try to promote them in their salaries.

The CHAIRMAN. What is the nature of their dictation? Recording the results of the work of the men in the Department?

Doctor MELVIN. Principally in correspondence and in writing reports; in getting up in typewritten form reports that have been written by the chief or whoever is making the report.

The CHAIRMAN. Do you mean annual reports, or reports made from time to time on different subjects?

Doctor MELVIN. The latter.

The CHAIRMAN. What?

Doctor MELVIN. Various reports regarding investigations that have been completed.

(Witness: Melvin.)

The CHAIRMAN. Now, what is the distinction between the service in the \$1,200 grade and the \$1,400 grade—I mean in the kind of service?

Doctor MELVIN. That is what I understood was under discussion.

The CHAIRMAN. No; I thought you were comparing the \$1,200 grade and the \$1,400 grade with the \$1,000 grade.

Doctor MELVIN. I see.

The CHAIRMAN. Is there any distinction? Are there any duties which the \$1,400 man discharges which are not discharged by the \$1,200 man?

Doctor MELVIN. There is not a clearly defined line between these grades, except as you consider the highest of the positions with the lowest of the positions. They intermingle, as it were, and it will sometimes happen that one who has been in the service for a number of years will be receiving somewhat more compensation for the same kind of work than one who has but recently entered the service.

The CHAIRMAN. Who is doing the same work?

Doctor MELVIN. Yes.

The CHAIRMAN. And accomplishing the same results?

Doctor MELVIN. Well, hardly that; no. It is usual to presume that the longer they are in the service the more satisfactory their work is. But individuals vary in their capacity. Some will do much better work than the others, and usually those who are the least efficient remain in their positions for an indefinite length of time without promotion.

The CHAIRMAN. Do the men who get the promotions remain at the same desks year after year and doing the same things at the same place?

Doctor MELVIN. No; not in all cases.

The CHAIRMAN. I mean as a rule?

Doctor MELVIN. No, sir; they usually have the higher class of work assigned to them.

The CHAIRMAN. Does that higher class of work involve their moving up in the Department—the change of location?

Doctor MELVIN. You mean an actual change in their position?

The CHAIRMAN. Yes.

Doctor MELVIN. Not necessarily.

The CHAIRMAN. I do not know that I make myself clear.

Doctor MELVIN. It would involve a change in the character of the work they were on, and therefore, while they might retain the same desk that they had previously sat at, their work would be different.

The CHAIRMAN. You mean different in kind?

Doctor MELVIN. Yes.

The CHAIRMAN. As a rule, then, do I understand you that when a man moves from the \$1,200 to the \$1,400 grade, while he may remain at the same desk, the kind of work that comes to that desk for him to do is different in kind and character and quality from the work that he was doing before that time?

Doctor MELVIN. In some cases; not in all cases.

The CHAIRMAN. What would be the rule?

Doctor MELVIN. The rule would be a change in the work.

The CHAIRMAN. That is, in the kind of work?

(Witness: Melvin.)

Doctor MELVIN. Yes.

The CHAIRMAN. Now, can you give the differentiation between the twelve hundred and the fourteen hundred dollar grade?

Doctor MELVIN. As I stated before, in those grades there is frequently not a very marked distinction in the kind of work which they are doing. The salary is regulated very largely by the length of service and by the character of the work performed.

The CHAIRMAN. Should it not be regulated altogether upon the basis of the results to the Government, the amount of work done?

Doctor MELVIN. I do not think so altogether. I think that length of service, where the service has been satisfactory, should result in some increased compensation.

The CHAIRMAN. For illustration, take a man who has been in the service a year and another who has been in the service ten years. Assuming the same units of result in each instance, is there any business basis upon which the man who at the expiration of ten years is only giving the same units of result as the man who has been in only a year should receive any more compensation? I would like to have your idea on that.

Doctor MELVIN. I think usually business establishments recognize length of service and give some additional compensation in recognition of it.

The CHAIRMAN. Does not that involve efficiency in accomplishing the results on the part of the employee?

Doctor MELVIN. Yes.

The CHAIRMAN. Of course, if a man has been at work for a long period of time doing a certain thing, he ought to do more work and produce more results at the end of a long period than at the beginning. If that were true, and if under those circumstances the compensation were increased, it would be commensurate with the results accomplished. But where you consider the mere fact of continuing in the service, for what reasons should that be made the basis of an increase in compensation, independent of producing additional results?

Doctor MELVIN. Ability to perform even the same class of work, a larger quantity, a larger amount of the same result—

The CHAIRMAN. Oh, yes; then you would get more units of result?

Doctor MELVIN. Yes.

The CHAIRMAN. I do not know what the practice is in that respect in your Department, although I am inclined to think that that element is an important factor in many of the promotions that are made—I am not speaking of your Bureau—but I say now, assuming the same units of result where a man has been in the service ten years that are produced by the man who has been in the service only one year, on that assumption would there be any reason why the man who had been in the service ten years should receive additional compensation?

Doctor MELVIN. I am inclined to think there should be.

The CHAIRMAN. For what reason?

Doctor MELVIN. As a reward for his continuous service and faithful service. Take the question of our veterinarians who enter at \$1,200. We have some who perform the same work as others who are getting \$1,400 and \$1,500; but it would be impossible for us to

(Witnesses: Melvin, Zappone.)

obtain veterinarians if there was not some prospect for some increase in salary. They are satisfied to enter at a lower salary, hoping by faithful service to be advanced. And I think the same principle, to a great extent, pertains to clerks.

The CHAIRMAN. That is, it is your idea that the expectation of an increased compensation after a certain period of time leads men to enter the service, and you are therefore able to get the services of more valuable and efficient men?

Doctor MELVIN. Yes.

The CHAIRMAN. Yes.

Mr. SAMUEL. Does a veterinarian require a specific training?

Doctor MELVIN. Yes.

Mr. SAMUEL. Or technical knowledge?

Doctor MELVIN. Yes; they are required to be graduates of veterinary colleges having a three years' course, and in addition to pass a technical civil-service examination.

Mr. SAMUEL. Then you could not compare a veterinarian with an ordinary clerk, because it would not be a parallel case, would it, as to advancement?

Doctor MELVIN. Well, somewhat, in the case of clerk stenographers. They have to acquire some special training for the service.

Mr. ZAPPONE. The prospect of promotion is certainly an important factor in bringing good men into the Department; also the prospect of a scientific training at the expense of the Government.

The CHAIRMAN. Oh, certainly. Right on that line, do you have any difficulty in getting men for your service, starting them in the lower grades?

Doctor MELVIN. You are referring now to the clerks?

The CHAIRMAN. Yes; and employees generally. Well, clerks; because we are discussing them particularly.

Doctor MELVIN. We have had to increase our clerical force quite a good deal on account of this increased meat inspection, and we have had considerable difficulty in getting clerks that would be satisfactory at the rate of a thousand dollars a year.

One reason, I presume, for that is on account of the apportionment. I had one case called to my attention of one very competent clerk who would be willing to enter the service at that salary, but he came from a State the apportionment of which was full, and therefore he could not be certified.

The CHAIRMAN. Are these appointments that are certified by the civil-service list apportioned to the various States, as you understand it?

Doctor MELVIN. Yes, sir; these clerks in Washington; not outside.

The CHAIRMAN. That applies to the service in Washington?

Doctor MELVIN. Yes.

The CHAIRMAN. Do you know whether or not there are applicants waiting for appointment to the service who have taken the civil-service examination, or do you not know about that?

Doctor MELVIN. Yes; there are.

The CHAIRMAN. Do you know whether there is a large number of them?

Doctor MELVIN. I could not say as to the number of them.

(Witnesses: Melvin, Zappone.)

Mr. SAMUEL. Is the Department suffering on account of this apportionment?

Doctor MELVIN. Well, to that extent. I was able to cite one case, or rather I say I know of one case, and I think there are many such cases.

The CHAIRMAN. Were you able to get from the list of available men a clerk who satisfied the requirements?

Doctor MELVIN. Not on the first certification. We had to ask for a second certification.

The CHAIRMAN. You had to ask for a second certification?

Doctor MELVIN. Yes.

The CHAIRMAN. On the first certification the clerk that you wanted happened to come from a State whose quota was already full?

Doctor MELVIN. I think you misunderstand. If a clerk has passed an examination at a high rate, and he comes from a State whose apportionment is full, he is not certified until the other clerks from the other States whose apportionments are not full have been certified and appointed. Then his turn comes. If there are no others who can be certified, then he is certified, but not until then.

Mr. SAMUEL. This only applies to original entrance to the service?

Doctor MELVIN. Yes.

Mr. SAMUEL. But it does not apply to a promotion?

Doctor MELVIN. No.

Mr. ZAPPONE. The matter of certification for original entrance to the service is one that the Civil Service Commission controls entirely.

Dr. MELVIN. That is a matter of the law.

Mr. ZAPPONE. They have the apportionment divided up into States, and a certain quota is allowed to each State. They may have any number of applicants who have passed the examinations with very high ratings, and who may be eligible for certification to the Department, but they can not certify them because the quota of the State to which they belong is full, and they are forced to select names for certification from some State out in the far West, perhaps, whose quota is not overrun. The people in the far West do not take the examinations as generally as do the people in the East, who are nearer to Washington.

Doctor MELVIN. Nearly all of these Eastern States have their quotas filled.

The CHAIRMAN. In this particular case, what particular inconvenience were you subjected to on account of this?

Doctor MELVIN. We were delayed considerably in getting the services of one whom we wanted, and then we did not get a man of as good qualities as we had hoped to get.

The CHAIRMAN. That did not necessarily indicate that there were not applicants waiting?

Doctor MELVIN. No.

The CHAIRMAN. But it indicated that under the machinery of the civil service in that particular instance you were not able to get as desirable a man as you wanted?

Doctor MELVIN. Yes.

The CHAIRMAN. And notwithstanding there may have been a very large surplus of people who had taken the examination waiting to enter the service?

(Witnesses: Melvin, Zappone.)

Doctor MELVIN. Yes.

The CHAIRMAN. But under that peculiar condition their names could not be presented, under the examination?

Doctor MELVIN. Yes.

Mr. ZAPPONE. It is really a wasted effort on the part of most applicants to take the examination, as such a small number of those who pass the required tests receive appointments. An examination only holds for a year—that is, they are only kept on the eligible list for a year, and if they are not certified and accepted for appointment within that time their names are stricken from the eligible list. After one year, I believe, they can take the examination again, and if successful are restored to the list and are eligible for certification during the next year.

The CHAIRMAN. Now, you have \$1,600 and \$1,800 clerks—two classes of clerks above \$1,400. Can you give readily the difference between those two ranks, \$1,600 and \$1,800, with reference to the duties they discharge? Is it simply a question of efficiency or additional duty or length of time and service that gives rise to the creation and maintenance of those grades?

Doctor MELVIN. No, sir; it is almost entirely governed by efficiency in those grades.

The CHAIRMAN. By efficiency?

Doctor MELVIN. Yes.

The CHAIRMAN. That is, there is no increase in the kind of duties or the things they do?

Doctor MELVIN. There may be, possibly, an increase in the quality. We have, I think, but four clerks at \$1,800, and their work is of a very high character.

The CHAIRMAN. That, of course, does not really convey much of an idea to me, because I am not familiar enough with your department to know what work of a high character is. What do you mean by work of a high character?

Mr. SAMUEL. Is it more technical?

Mr. ZAPPONE. May I give you the names of one or two, for illustration?

Doctor MELVIN. Yes.

Mr. ZAPPONE. Here is Mr. Roberts. Or take Mr. Pew or Mr. Gerdes.

Doctor MELVIN. Are they at \$1,800 or \$1,600?

Mr. ZAPPONE. Mr. Pew is at \$1,600 and Mr. Gerdes is at \$1,800. Then you have Mr. Carroll at \$1,800. He is your acting chief clerk, is he not, when the chief clerk is away?

Doctor MELVIN. Mr. Carroll acts as chief clerk in the absence of the chief clerk, and is also my stenographer or private secretary and acts in that capacity, and is able to attend to many of the visitors to the office, and that relieves me of seeing many of the visitors to the office. He is capable of doing that. He is sufficiently informed regarding the work of the Bureau to do that work. His work as a clerk is more in regard to minor details. In the case of Mr. Abel, he is receiving \$1,800. No; I forget that we are discussing last year.

Mr. ZAPPONE. Why not compare these two positions? You have spoken of Mr. Carroll; now compare his duties with those of Mr. Abel, who gets \$1,600.

(Witnesses: Melvin, Zappone.)

Doctor MELVIN. Mr. Abel, who formerly received \$1,600, was in charge of the correspondence, received the mail, opened it, and assigned the mail to the different divisions. He was able to tell from the nature of it what division it belonged to. He kept the index cards, the records, and was also quite familiar with the general work of the whole Bureau.

Now, to instance one reason for making promotions, he was this year promoted to \$1,800, and that increase was based very largely on the tremendous increase of our correspondence through the new meat bill, and also to the consolidation of our files; instead of having two sets, making one of them, and of course it increased his responsibility and also his work to a very great extent. Mr. Gerdes, who for a number of years has been receiving \$1,800, was a man who had been assigned to a variety of duties in the Bureau and also at one time he did a large amount of translation for us of the laws of different foreign countries referring to meat inspection and matters of that sort.

The CHAIRMAN. Is he a linguist?

Doctor MELVIN. Yes, sir; he understands French and German.

The CHAIRMAN. These stenographers—about one-third of these clerks are stenographers—are their duties largely comprised of stenographic work, taking dictation?

Doctor MELVIN. Not many of them take much dictation. Most of them do more or less typewriting and occasionally take dictation. Some who are assigned to a particular chief of a division take a great deal of the dictation of that chief; but in some instances it is necessary for two or three to be supplied to take the dictation, to write the letters. It is considered advisable to have one do the work directly in connection with the desk of the chief on account of the more or less technical nature of the work, so that they become expert in the particular division where they are. It is work that requires some experience to become familiar with.

The CHAIRMAN. That is in the case of the stenographer at the desk of the bureau chief?

Doctor MELVIN. Yes.

The CHAIRMAN. And that stenographer's work is taking dictation and transcribing?

Doctor MELVIN. Yes.

The CHAIRMAN. Are these clerks ladies or gentlemen?

Doctor MELVIN. We have some of both sexes. I think the majority of them are males. We have had for a few months past several female clerks, stenographers, because we were unable to get at a reasonable sum male stenographers and clerks; these females were put on temporarily for six months under civil-service provision.

Mr. ZAPPONE. Is it not the practice to encourage low-grade clerks who are appointed through the civil service to take up the study of stenography with the view of better qualifying themselves for the particular position to which they have been appointed, and also with a view to their own advancement? I have found in my own experience that the average young man who takes up shorthand and typewriting becomes better qualified in every way for his duties in the Government service. The practice that he receives in handling all the correspondence and taking the dictation in a large office familiarizes him in a general way with the duties of that office, and it is not

(Witness: Melvin.)

long before that man's services are needed for some higher position, and he is then given more salary. When he reaches that goal he is required to perform more important work and his duties as a stenographer and typewriter cease. I may state that that has been my own experience in the Government service. I took up stenography and typewriting, and through that I got a knowledge of the general workings of the bureau in which I was employed.

Doctor MELVIN. I think there is a very great tendency on the part of clerks to increase their knowledge not only in stenography and typewriting, but in all matters of education.

The CHAIRMAN. Is there a sufficient volume of work there, in the Department here in Washington, to keep these stenographers, for instance, continuously employed during the working hours?

Doctor MELVIN. Not always at stenography alone, but while they are not engaged in that work they have other clerical duties which they perform, such as arranging the correspondence and filing it. I have one case in mind where a clerk is engaged in sending out supplies to our field stations. He is a stenographer and typewriter, and in many instances he will write his own letters—that is, prepare them for the signature of the chief. And he can do it quicker, frequently, where he has not very many letters to write, than he could if he dictated it to another stenographer.

The CHAIRMAN. That is, he puts them right on the typewriter?

Doctor MELVIN. Yes.

The CHAIRMAN. Do you have any stenographers there whose time is wholly engaged in taking dictation and transcribing the notes?

Doctor MELVIN. Yes; we have several. But the majority of them are not so engaged exclusively. The majority of them do other clerical work, and in many instances it is a main part of their work.

The CHAIRMAN. Is the bureau work here in Washington so distributed among these stenographers and clerks that it requires the continuous services of several of them during your working hours to get through with the work of the day?

Doctor MELVIN. Yes; I think they are all continuously engaged during office hours.

The CHAIRMAN. Then you have no more force than is absolutely necessary to get your work done?

Doctor MELVIN. Our force for some months past has been working overtime. We had to do it.

The CHAIRMAN. That is, your force has not been capable of keeping up with the work?

Doctor MELVIN. The work has increased so rapidly.

The CHAIRMAN. That is on account of these additional matters that have been imposed on your Bureau?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. How do the salaries that are paid here in Washington compare with salaries in private employment of a corresponding character, if there is any private employment with which proper comparison can be made?

Doctor MELVIN. I donot know that I can make a comparison between the Government force and private employment, but as between our force in Washington and our force in the field the field force is paid much the less—that is, speaking of clerks.

The CHAIRMAN. That is, the force is paid much less where?

Doctor MELVIN. In the field.

The CHAIRMAN. In the field than in Washington?

Doctor MELVIN. Yes.

The CHAIRMAN. Why is that? Can not you get men at the same rate in Washington that you get them in the field?

Doctor MELVIN. No; we do not seem to be able to.

The CHAIRMAN. What is your idea of that; why is that?

Doctor MELVIN. As I remarked, we tried to obtain a clerk at a thousand dollars here in Washington and we had considerable difficulty in finding one who would do the work. We have obtained for \$840 clerks in the field, through civil service, who would have been able to do the work that we wanted done in Washington. It is a condition that obtains. I do not know that I can explain why.

The CHAIRMAN. But they are both appointed through civil service, and that is the condition that you find?

Doctor MELVIN. Yes.

The CHAIRMAN. A little later I want a comparison as to the duties of the men in the field; but the fact is you can get men in the field for \$840 who would not enter the service here in Washington for \$1,000?

Doctor MELVIN. I do not know that they would not enter it. I do not know whether it is on account of this rule of apportionment or not, but they do not get here.

The CHAIRMAN. At any rate, the result of the operation of either the civil-service regulations or the inclination of the employees is that a man who is employed here or earning a thousand dollars will take an employment outside at \$840, or at least he does?

Doctor MELVIN. Yes; that is true. We have had cases where we wished to transfer clerks from the field to our office in Washington, and they will not accept it at the same salary. They prefer to remain in the field at the same or at a less salary.

The CHAIRMAN. That is because their expenses are greater here than in the field?

Doctor MELVIN. That is the main reason; yes, sir. Of course another reason would be they would have additional expenses in moving, and probably the slight increase would not offset their expenses.

Mr. ZAPPONE. Oftentimes they are nearer to their homes in the field, are they not?

Doctor MELVIN. Yes.

Mr. ZAPPONE. It is also due to the increased cost of living here in Washington.

The CHAIRMAN. I supposed that might be it. Here you have an editor at \$2,000. What are the duties of an editor, or of the editor?

Doctor MELVIN. His work is to revise or review the various publications that are issued by the Department and to get them in proper order for submitting to the Division of Publications. In other words, he can give us more constant attention in getting these publications in order than the editor of the Department would be able to give us.

The CHAIRMAN. Than who—the editor of the Department?

Doctor MELVIN. Yes.

(Witnesses: Zappone, Melvin.)

The CHAIRMAN. Do you have several editors, then?

Mr. ZAPPONE. We have several editors in the Division of Publications of the Department, also assistant editors. That may seem like a large number of editors for the Department, but there is work for all of them.

The CHAIRMAN. What do they do?

Mr. ZAPPONE. They edit all copy, striking out irrelevant matter and repetitions in substance and otherwise condensing wherever possible before it goes to the Government Printing Office, and proof it after it comes back. The farmers' bulletins alone keep them busy the best part of the time.

The CHAIRMAN. Then they censor the contents?

Doctor MELVIN. They do.

The CHAIRMAN. For instance, the chief of the bureau prepares an article for publication and the matter goes to the editor and the editor looks it over and exercises his judgment as to whether the subject has been properly treated by the chief of the bureau, and if he thinks it has not been properly treated by the Chief of the Bureau he changes it or calls the attention of the chief of the bureau to it for the purpose of having it changed? Is that what it means?

Doctor MELVIN. He would call the attention of the writer to whatever he may have to criticise, and in addition to that would prepare the document in proper shape, together with the illustrations, if there were any, for submission to the Division of Publications. Frequently it comes back even from the Division of Publications, again, to the bureau or division that it goes from and is again revised.

The CHAIRMAN. Is that final revision a matter of going over the substance of the article or a matter of proof reading?

Doctor MELVIN. Both.

The CHAIRMAN. Who does that, the editor or the man who prepares the article? Who does the proof reading?

Doctor MELVIN. We have a proof reader in the Bureau in addition to the editor.

The CHAIRMAN. This proofreading, then, is outside of the editing?

Doctor MELVIN. Yes, sir; that is strictly proof reading.

The CHAIRMAN. For instance, do you prepare from time to time, yourself, articles in connection with your department?

Doctor MELVIN. Yes.

The CHAIRMAN. Would an article prepared by you as the head of the Bureau be subjected to the editing of the editor?

Doctor MELVIN. Yes.

The CHAIRMAN. Do you mean by that that he is either authorized or expected to revise the substance of that production?

Doctor MELVIN. No, sir; not the substance.

The CHAIRMAN. Or to criticise the form or the expression?

Doctor MELVIN. He may suggest changes in both the form and the expression.

The CHAIRMAN. Is his work, then, purely literary?

Doctor MELVIN. Not purely. He has to have a knowledge of the method which prevails in the Department generally regarding publications.

The CHAIRMAN. Take the case of yourself, for instance. It would not be probable that he would be as well advised about a matter about

(Witness: Melvin.)

which you are writing as you are, because of that you would undoubtedly have expert knowledge.

Doctor MELVIN. Yes; that is quite true, and he would not be expected to change the sense or the substance of the matter in any way.

The CHAIRMAN. Does he confine himself to the literary form?

Doctor MELVIN. Practically; yes, sir.

The CHAIRMAN. How many such editors do you have here in Washington?

Doctor MELVIN. We have in this Bureau this one, and he has with him four different clerks—four or five different clerks.

The CHAIRMAN. And do those clerks under him exercise this literary supervision over the work of the various bureau heads or various persons in your Department?

Doctor MELVIN. Not to any great extent. One is a proof reader and the other is a translator, and they all read proof and assist in the work.

The CHAIRMAN. I do not know what the fact about it is, but do the clerks undertake to exercise literary supervision, or is that a matter that the Editor himself takes charge of?

Doctor MELVIN. He takes charge of that. They may run through some article before submitting it to him, but anything that is changed or altered, or rather any suggested change or alteration, is submitted by him to the author of the article.

The CHAIRMAN. Are not the bureau chiefs, or the gentlemen who prepare these articles covered by the scope of your Bureau, as a rule very much more competent to treat these subjects, both from a technical and a professional and literary standpoint, than the ordinary clerk that the Editor would have in his office.

Doctor MELVIN. Probably better than the ordinary clerk, regarding the literary aspect of the article; and the substance, as it relates to the technical and professional sides of the article, would not be altered or commented upon by them.

The CHAIRMAN. How long have you had this editorial supervision of the literary work of your department?

Doctor MELVIN. I think for six or seven years.

The CHAIRMAN. Prior to that time, what difficulty did you have in handling the affairs of the Bureau on that line, if any? I do not know what the facts may have been.

Doctor MELVIN. The work of the Bureau was less. The work of the whole Department was very much less. We were able to get much closer to the Chief of the Division of Publications, and one had more time to devote to this work himself, personally. We felt the need of having some one whom we could trust to give the matter careful attention.

The CHAIRMAN. I suppose the result has been, then, that the work done by the bureau heads, or the gentlemen preparing these articles, is not done with the care that it would be if that was the final work on the article, and that that knowledge, that it will be afterwards examined by the editor, relieves them of some work; is that the idea?

Doctor MELVIN. From a literary standpoint; yes, sir. Of course the technical and scientific side of the subject is thoroughly treated by them.

(Witnesses: Melvin, Zappone.)

The CHAIRMAN. Yes; that, of course, the author must be final on.

Doctor MELVIN. Yes.

The CHAIRMAN. Do you think it is really necessary; this editorial supervision such as you now have?

Doctor MELVIN. Yes; I think it is very necessary.

In addition to this, in that office quite a complete record is kept of the status of the various publications that are issued by the Bureau. The Bureau sends out quite a good many publications. Many applications come to the Bureau for various publications, and these are passed upon in this office and request is made upon the Division of Publications that they be forwarded. That is where the Department has them for distribution. Frequently applicants are referred to the superintendent of public documents or to the Representatives from the districts that they come from.

The CHAIRMAN. Do they have these editors in the other bureaus?

Doctor MELVIN. In some of them. I do not know how many there are in the Department.

The CHAIRMAN. How does your Bureau compare with the other bureaus in regard to the publications that are issued by it, in a general way?

Doctor MELVIN. I think that our publications are nearly equal in number to those of any other bureau.

The CHAIRMAN. Are the bureaus practically on a level in that respect? Of course I do not mean absolutely.

Doctor MELVIN. About so, I should think.

The CHAIRMAN. Does not the same necessity exist for the editorial supervision in the other bureaus?

Doctor MELVIN. I think they have editors.

Mr. ZAPPONE. In the large bureaus; you have reference to the large bureaus, have you not?

Doctor MELVIN. Yes; there is quite a difference in the bureaus. Some of them are much larger than others.

The CHAIRMAN. I do not think we ran across that in the Weather Bureau.

Mr. ZAPPONE. No; they have a large printing office, and they are not called editors, but proof readers. May I make a statement in this connection?

The CHAIRMAN. Certainly.

Mr. ZAPPONE. The duties of an editor, as I understand them, are largely to look over an article as to its style, and boil it down into the most succinct form. I think it is in the interest of economy to have an editor in each bureau. Many of the employees who write articles—they are not all written by the chief of the Bureau, and he has not time to go over all of them—have neither the time nor the ability to properly edit their articles.

That work must be done by some man who can reduce them to a brief form, and thus save the Department an immense amount of money in the printing of these publications, and also present them to the public in a more readable form.

The CHAIRMAN. Of course the man who writes the article, or some one else, must get an article into the most succinct form.

Mr. ZAPPONE. Yes; and they do not have the literary knowledge to do it. About a year ago the President directed the head of each De-

(Witness: Zappone.)

partment to appoint an advisory committee on the subject of printing and publications, with the view of reducing the cost of the same. The order issued by the Secretary of Agriculture reads as follows:

GENERAL ORDER NO. 92.

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., January 23, 1906.

The President, under date of January 20, 1906, has issued the following Executive order:

"It is hereby ordered that there shall be appointed by the head of each of the Executive Departments an advisory committee on the subject of printing and publication. The chairman shall be an Assistant Secretary or other qualified official, and at least one member of the committee shall have had practical experience in editing and printing.

"It shall be the duty of such committee, under direction of the head of the Department, to see that unnecessary matter is excluded from reports and publications; to see that copy is carefully edited before rather than after going to the Printing Office; to do away with the publication of unnecessary tables, and to require that statistical matter be published in condensed and intelligible form; to supervise the preparation of blank forms; to require the frequent revision of mailing lists; to prevent duplication of printing by different bureaus; to exclude unnecessary illustrations from Department documents, and to prevent the printing of the maximum edition allowed by law when a smaller edition will suffice; to recommend to the head of the Department, for inclusion in the recommendations contained in his annual reports, needed changes in the statutes governing Department publications.

"The following general principles shall hereafter govern the form of the annual reports of the various bureaus and offices of the Departments:

"(1) Annual reports shall be confined to concise accounts of work done and expenditures incurred during the period covered, with recommendations relating to the future, including plans for work to be undertaken.

"(2) Contributions to knowledge in the form of scientific treatises shall not be included in annual reports.

"(3) Illustrations in annual reports shall be excluded, except (a) maps and diagrams indispensable to the understanding of the text; (b) views of monuments or important structures begun or erected; (c) views showing conditions in outlying possessions of the United States and relating to work done or recommendations made.

"(4) Inserted material, written or compiled by persons not connected with the reporting office, and biographical and eulogistical matter relating to the past or present personnel of the office, shall be excluded.

"(5) Reports of officers who do not report directly to the head of an Executive Department shall not be reported in the annual report of a Department, but where necessary shall be summarized in the reports of the officials to whom such officers do report.

"(6) Tables shall be inserted only when verbal summaries and statements of totals are inadequate, and complete texts of laws and court decisions shall, except in cases of great importance, be excluded.

"(7) Detailed descriptions and lists of methods, processes, purchases, bids, rejections, installations, repairs, specifications, and personnel employed shall be omitted except when required by their unusual importance or by statute."

In accordance, therefore, with the first clause of the above Executive order, the following are appointed an advisory committee on the subject of printing and publication:

W. M. Hays, Assistant Secretary, chairman; Willis L. Moore, Chief of the Weather Bureau; George Willam Hill, Department editor, who shall be secretary.

The attention of all chiefs and editorial assistants is called to the terms of the above Executive order, compliance with which is enjoined upon all persons submitting or supervising matter submitted for publication.

JAMES WILSON, Secretary.

(Witnesses: Melvin, Zappone.)

Mr. SAMUEL. In the promotion of clerks would a clerk of long service have precedence over a more efficient clerk for promotion?

Doctor MELVIN. Simply on account of his length of service?

Mr. SAMUEL. Yes.

Doctor MELVIN. No; I think not.

The CHAIRMAN. What proportion of your employees in Washington would be called scientific men?

Doctor MELVIN. This difference is fairly expressed by the difference in the statutory salaries and the lump-fund salaries in Washington. Most of the scientific force—I guess all of it—is on the lump sum, and the other is on the statutory.

The CHAIRMAN. Why is that distinction necessary?

Doctor MELVIN. Because, in order to obtain a competent and working force in the scientific lines, it is necessary that we should have more discretion with reference to fixing salaries. We have found already that our limitation to \$3,000 per annum is a serious detriment in retaining the services of competent scientists.

The CHAIRMAN. That is, if they can get employment elsewhere in their specialty at a rate higher than that the Government pays?

Doctor MELVIN. Yes. Many of them we have in our Bureau today, our men, are now working at a less salary than they have received offers for from the outside.

Mr. ZAPPONE. Was not the former chief of your Bureau, Doctor Salmon, offered a very high salary by one of the South American countries when he separated from the service—\$10,000, was it not?

Doctor MELVIN. Yes; he was. It was \$6,000.

The CHAIRMAN. On pages 62 and 63 the items begin with the chief of the inspection division and end with laboratory assistant, at \$80 per month. This all involves scientific work and requires men who have more or less scientific knowledge?

Doctor MELVIN. Yes.

The CHAIRMAN. When you reach page 64, then you get your ordinary laborers?

Doctor MELVIN. Yes; there are a few at the bottom of page 63, but most of them are on page 64.

The CHAIRMAN. Yes; page 64 is principally the laborers. How many buildings do you occupy with your Bureau here in Washington?

Doctor MELVIN. We have two entire buildings and rooms in an office building.

The CHAIRMAN. These six charwomen are engaged in keeping those buildings clean and in order, I suppose?

Doctor MELVIN. Yes.

The CHAIRMAN. What services do your laborers render? I see you have quite a number of laborers here in Washington. What sort of work do they do? This is on page 64. There are something like 32 laborers there.

Doctor MELVIN. The majority of those laborers are employed at our experiment station near Bethesda, Md., just outside of the District of Columbia. They are used there in caring for animals that are under investigation and experimentation and in taking care of the grounds of the station. It is necessary to have quite a large number, as it is not considered safe from an experimental point of view to have these men taking care of several lots of animals

(Witnesses: Melvin, Zappone.)

where different diseases are being investigated, for fear of carrying the disease.

The CHAIRMAN. For fear of transferring the contagion?

Doctor MELVIN. Yes.

The CHAIRMAN. Does that medical fact—if that is the proper way of speaking of it—

Doctor MELVIN. Yes.

The CHAIRMAN (continuing). Does that medical fact involve the employment of more than would be otherwise necessary?

Doctor MELVIN. Yes. Their time is utilized as far as possible, when they are not engaged in caring for animals, in the improvement of the grounds. These animals are necessarily confined to small paddocks, and if it is in the summer we feed them green fodder, which we raise on the premises, and these men do that farm work besides taking care of the animals.

The CHAIRMAN. That is at your experimental station out in Maryland?

Doctor MELVIN. Yes.

The CHAIRMAN. Have you more than one experiment station?

Doctor MELVIN. That is all.

The CHAIRMAN. Has your bureau any stations or offices for demonstration or experimental purposes except in Washington and the one in Maryland that you have been speaking of?

Doctor MELVIN. We have offices in various cities where we have meat-inspection stations, and then we have a number of experiments that are being carried on in connection with State experiment stations. Of course they are carried on upon the premises of the State experiment stations.

The CHAIRMAN. But the only experiment station that your Bureau has for itself, per se, is this one in Maryland?

Doctor MELVIN. That is all.

The CHAIRMAN. When was that constructed?

Doctor MELVIN. About six years ago—six or eight years ago.

The CHAIRMAN. Could you state, approximately, about how much of an investment it represents?

Doctor MELVIN. No; I do not remember. I think probably it would be originally in the neighborhood of \$15,000 or \$20,000; maybe more than that. The first purchase included 20 acres, and a subsequent purchase included 30 additional acres, or 50 acres in all, representing about \$30,000.

The CHAIRMAN. About what is the annual cost of maintenance?

Doctor MELVIN. Is that given here?

Mr. ZAPPONE. No; it is not given in the projects.

Doctor MELVIN. I think I can get it for you.

Mr. ZAPPONE. It is not here. The expenses of that come in under your general fund.

Doctor MELVIN. It is \$29,574.

The CHAIRMAN. That is annual maintenance?

Doctor MELVIN. That was for last year; yes, sir.

The CHAIRMAN. Then approximately it is \$30,000?

Doctor MELVIN. Yes.

The CHAIRMAN. Does the Government own the land and the buildings there?

(Witnesses: Melvin, Zappone.)

Doctor MELVIN. Yes, sir.

Mr. SAMUEL. Do those laborers receive promotions?

Doctor MELVIN. Yes, sir; we have had to promote them to keep them.

The CHAIRMAN. When they get promoted they are not called laborers?

Doctor MELVIN. They are promoted as laborers.

The CHAIRMAN. Do you have grades of laborers?

Doctor MELVIN. No; possibly they may receive in the course of a year or two or three years a promotion of \$5 a month in pay.

Mr. SAMUEL. What is the difference between the laborers at \$30 a month and \$40 a month and \$50 a month?

Doctor MELVIN. Their skill and efficiency in caring for the animals makes that difference in their pay. That is determined by the superintendent of the experiment station.

Then there is a difference in their class of work. We have some who act as watchmen, night watchmen and day watchmen. Some act as laborers, and others do a little higher class of work. They understand more about the class of experimental work they are engaged in, and can be trusted to do more careful work.

Mr. ZAPPONE. Here is an illustrative case, at the top of page 64, W. F. Pugh. He was a laborer at \$50 a month and was promoted to watchman at \$60 per month.

Mr. SAMUEL. Do those laborers work every day?

Doctor MELVIN. Yes; Sundays and all.

Mr. SAMUEL. I should imagine so, from the character of the work.

Doctor MELVIN. Of course there is a great deal of their work that is dispensed with on Sunday.

Mr. SAMUEL. You make it as light as possible?

Doctor MELVIN. Yes.

Mr. SAMUEL. When a laborer reaches a salary of \$50 a month, he is eligible to promotion, then, to some other position besides that of a laborer?

Doctor MELVIN. No, sir; I think not without a civil-service examination. These men—the majority of them—are merely laborers and are not capable of a much higher class of work.

Mr. SAMUEL. A large percentage of the employees in Washington are scientific men, are they not?

Doctor MELVIN. On the lump fund?

Mr. SAMUEL. Yes.

Doctor MELVIN. Yes, sir.

Mr. ZAPPONE. In fact, outside of the laborers, watchmen, and the messenger force you can very properly say that all the lump sum employees in Washington are scientists or connected with the scientific staff. Am I not correct?

Doctor MELVIN. Yes.

Mr. SAMUEL. I notice that you have two architects. What are their duties?

Doctor MELVIN. One of those was employed but a short time, and we have but one now. This architect was originally obtained by us by transfer from the Treasury Department to supervise the building of some quarantine stations for imported animals that we have at Athenia, N. J. He was returned to Washington and was for some

(Witnesses: Melvin, Zappone.)

time engaged in preparing general plans of dairy barns and dairy buildings that might be generally suited to farm conditions. Recently he has been assigned to investigations, making an investigation with regard to sanitary materials to be used in the construction of abattoirs and meat-curing establishments.

Mr. SAMUEL. I notice that several persons employed are designated simply "experts." Are they experts in any particular branch? They are simply marked "experts."

Mr. ZAPPONE. Take Mr. Bolton, at the bottom of page 63.

Doctor MELVIN. He is an expert in bacteriology. I think he has since qualified through civil-service examination and is regularly appointed.

Mr. ZAPPONE. Yes; this shows his promotion from an expert, at \$1,800, to an assistant in bacteriology, at \$2,000.

Mr. SAMUEL. Then here is Mr. White, who is an expert.

Doctor MELVIN. He was also employed in our biochemic division.

Mr. SAMUEL. What is this special agent? What are his duties?

Doctor MELVIN. You mean Mr. Pitney?

Mr. SAMUEL. Yes; Pitney.

Doctor MELVIN. This man was employed to prepare an exhibit made by the Bureau at the Portland exposition. He is an artist.

The CHAIRMAN. I notice that Mr. Wray, inspector, is apparently receiving a large salary as foreign inspector. Will you explain why?

Doctor MELVIN. Doctor Wray has been stationed for a number of years as a representative of the Department in Great Britain, and his salary is rather large on account of the numerous incidental expenses to which he is subjected.

The CHAIRMAN. That is, there are expenses necessarily incident to the discharge of his duties over there that are intended to be covered by the increase of compensation as compared with other inspectors?

Doctor MELVIN. Yes.

The CHAIRMAN. What are his duties over there? What does he do?

Doctor MELVIN. Originally there were three inspectors stationed in Great Britain. They were sent there in 1890. The purpose was to determine whether pleuro-pneumonia of cattle was being found among American cattle, as reported by the English veterinarians. I was stationed at Liverpool, and another veterinarian, Doctor Ryder, was stationed in Glasgow, and Doctor Wray was in London. Doctor Wray was in charge of the work. The other two were afterwards transferred back to this country. Doctor Wray remained. His services were considered sufficiently valuable in the way of obtaining general information for the Department, so that it was desired to keep him there; much information regarding trade conditions and the manner in which our animals were arriving, whether the ships were properly equipped, and information of that nature is reported by him.

The CHAIRMAN. Does he have any assistants; that is, are there any other employees besides himself there?

Doctor MELVIN. There is one assistant now in Liverpool—Doctor Geddes. In addition to overlooking the receipts of American live stock, he tests, with tuberculin, cattle which are intended for export to the United States, in order to reject any that may react to the tuberculin test.

(Witnesses: Melvin, Zappone.)

The CHAIRMAN. Do they collect any data outside of this service that they render in inspection?

Doctor MELVIN. Yes; they furnish more or less information which they consider of value to the Department. It is frequently from personal observation, but very frequently from printed matter which they forward to the office in Washington.

The CHAIRMAN. The per diem of the inspector in London is based on every one of the 365 days?

Doctor MELVIN. Yes.

The CHAIRMAN. Is that on the basis of service being rendered every day, or simply for the purpose of getting the lump sum as annual compensation. That gives him both week days and Sundays.

Mr. ZAPPONE. May I answer that, as I handle the account?

The CHAIRMAN. Yes.

Mr. ZAPPONE. It is based on a per diem rate, and Doctor Wray certifies that he renders service on each and every day in the year, including Sundays.

The CHAIRMAN. So that he certifies to it?

Mr. ZAPPONE. He certifies over his own signature that he performs services each and every day throughout the year, including Sundays, and on that the Chief of the Bureau of Animal Industry approves the voucher, and it is paid.

Doctor MELVIN. And I think that is correct, that he does render service every day.

The CHAIRMAN. The duty is such that it involves service every day?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Now, will you explain the character of the experiments at the experiment station?

Doctor MELVIN. Probably the largest investigation which we have under way at the experiment station is with reference to tuberculosis, studying the different phases of the disease, and the modes of infection, and the manner in which it is communicated from animal to animal.

Mr. SAMUEL. Do you manufacture antitoxins at those stations?

Doctor MELVIN. Not there. In our laboratory in this city we do. We did for several years prepare an antitoxin for the treatment of hog cholera, but this was found to be inefficient and it was abandoned. The study of tuberculosis among hogs has been carried out there quite extensively, and the fact was determined that tuberculosis could be communicated from tuberculous cattle to hogs through the eating by the latter of the feces from the cattle. An extensive experiment was made with reference to the parasitic infection of sheep. We have an experiment under way regarding Malta fever, or Mediterranean fever, in some goats—milk goats.

A number of Texas-fever experiments are being conducted at the station, and also an experiment for the raising of hogs immune to hog cholera.

Mr. ZAPPONE. All of these experiments were conducted at the experiment station at Bethesda, were they not?

Doctor MELVIN. Yes; that is, all at the experiment station at Bethesda, Md.

(Witnesses: Zappone, Melvin.)

Mr. ZAPPONE. There is really only one experiment station in that bureau, that at Bethesda, Md.

Mr. SAMUEL. These experiments are conducted with a view of the discovery of some preventive, are they not?

Doctor MELVIN. Yes; and to determine the exact nature of the diseases, so as to prevent their spread among live stock.

Mr. SAMUEL. You disseminate this information to the general public, of your discoveries?

Doctor MELVIN. Yes; it appears in the various publications, bulletins, and farmers' bulletins, and in the annual reports of the Bureau and of the Department.

Mr. SAMUEL. What advance have you made along those lines during the past year?

Doctor MELVIN. The very valuable fact was established, as I previously stated, that hogs could contract tuberculosis by following cattle. It is the general practice in the sections where corn is raised to have the hogs follow cattle, and the undigested part of the corn that passes through the cattle is eaten by the hogs, and in that way, if hogs were to follow cattle affected with tuberculosis they would undoubtedly contract the disease.

We are also carrying on an experiment to determine the practicability of vaccinating young stock to prevent their subsequently acquiring tuberculosis. Quite an extended experiment was made some few years ago regarding the susceptibility of monkeys to bovine tuberculosis. The statement has been made by prominent authorities that bovine tuberculosis was not communicable to man, and this experiment was conducted to determine whether monkeys might be affected with bovine tuberculosis.

Mr. SAMUEL. What success have you had with the experiments in vaccination for tuberculosis?

Doctor MELVIN. That which we are now conducting has not progressed sufficiently for us to obtain definite information. It will probably require about three years to do that. It has now been under way about one year. At this station we obtain flesh from calves that are inoculated with black-leg vaccine, and this is afterwards prepared in our laboratory and distributed for the vaccination of calves for the prevention of that disease. This is sent out upon application of stock owners without expense. We require them to furnish us with information regarding the number of stock and the number of deaths, and information of that sort.

Mr. SAMUEL. Are all cases of suspected disease forwarded to the station here, or are experiments conducted at stations elsewhere?

Doctor MELVIN. Many animals suspected of disease—small animals—are sent to our laboratories in Washington, particularly dogs that are presumed to be affected with rabies. We have many cases of disease in poultry sent to us. We have had in one instance a horse placed in our charge at the experiment station that was bitten by a rabid dog. The horse was retained until he subsequently died of rabies, and the experiment was conducted and carried on through several other animals, each of which died with rabies, establishing the contagious nature of the disease through inoculation.

Mr. SAMUEL. Do you experiment as to the effect of medicine on those diseases?

(Witness: Melvin.)

DOCTOR MELVIN. No, sir; not to any great extent.

MR. SAMUEL. Not to the extent of developing the proper treatment for those diseases in animals?

DOCTOR MELVIN. No, sir.

THE CHAIRMAN. Then you do not make experiments in therapeutics?

DOCTOR MELVIN. In some respects we do, but not to a very great extent. We have been making a number of experiments with different remedies to determine cures for eradicating parasites like scab and mange in sheep and cattle, and in killing the tick which affects the southern cattle. There are a large number of different medical preparations which are used in that line of work. But ordinarily we do not experiment to a great extent with internal remedies for the cure of diseases of live stock.

MR. SAMUEL. Is there any Department of the Government which does experiment along those lines?

DOCTOR MELVIN. I think not.

MR. SAMUEL. Have you ever made an approximate estimate of the general utility of those experiments to the Government and the country at large?

DOCTOR MELVIN. Not as a whole. We have had some estimates made regarding the reduction in the amount of black leg, which attacks young stock. I do not know whether it is given in this report or not. As explaining somewhat the results of this, I might say that the results of the inoculations for the year ending June 30, 1905, as reported to the Bureau by the stock raisers who have used the vaccine, are as follows: Number of reports, 7,235; number of cattle vaccinated, 733,421; deaths, same season, previous to vaccination, 11,381—per cent, 1.55; died after vaccination, 3,963—per cent, 0.54.

THE CHAIRMAN. I did not get the purport of that.

DOCTOR MELVIN. That is, deaths upon the same season previous to vaccination were 1.55 per cent, and the percentage of deaths after vaccination was 0.54 per cent.

THE CHAIRMAN. That is, there was an improvement of about 1 per cent?

DOCTOR MELVIN. Yes.

THE CHAIRMAN. No; it is a reduction in percentage of deaths to about one-third—that is, it is an improvement of nearly 300 per cent.

DOCTOR MELVIN (reading):

After eliminating the number of cattle which die within forty-eight hours after vaccination as a result of being already infected with blackleg at the time of injection, and those whose death has been due to mistakes in performing the operation, the number of cases that died after vaccination is reduced to 3,575, or 0.48 per cent, whereas the losses without the use of vaccine were formerly as high as 10 or 12 per cent of the calves produced annually in the infected districts.

That is quite a remarkable showing. The idea of the Department is that by the continuous distribution of this blackleg vaccine, as the disease would not develop, it would naturally become extinct. At the commercial valuation of 12½ cents a dose, this saves \$160,625 annually. Without its use 20 per cent of young cattle die of blackleg; saving these by treatment is worth \$3,107,700 per annum.

THE CHAIRMAN. Yes.

(Witness: Melvin.)

Doctor MELVIN. The premises become infected from the carcasses of the dead animals and reproduce the disease, and if we can prevent the death of the animals the disease will be in time exterminated.

Mr. SAMUEL. Have you facilities to produce vaccine enough for the demand?

Doctor MELVIN. It is only on rare occasions that we have been unable to do that. Sometimes there is an unusual demand for it, and for a short period we would be without enough, and would have to limit the amount to the different owners—that is, we could not supply as much as they would each desire.

The CHAIRMAN. You would not have sufficient supply to take care of the unusual demand?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. If you could anticipate that unusual demand, you would have the facilities to take care of it?

Doctor MELVIN. Yes.

The CHAIRMAN. By the additional use of your facilities you can produce enough to meet all the demands made upon you for that purpose?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Is your experimentation in this experiment station confined to external and preventive remedies rather than to internal and curative remedies?

Doctor MELVIN. So far as medicines are concerned, yes; but the principal work here is the scientific investigation with reference to the nature and knowledge of these various diseases.

The CHAIRMAN. And do you devote time to the investigation of their cure as well as their prevention?

Doctor MELVIN. Not to any very great extent through the use of medicine. The main disease which has occupied most of our time has been tuberculosis.

The CHAIRMAN. Yes.

Doctor MELVIN. And the medical treatment of that disease is not considered very beneficial.

The CHAIRMAN. That is, it is not practicable?

Doctor MELVIN. No, sir; so that our study has been confined to those lines indicated.

The CHAIRMAN. That is mainly a question of prevention?

Doctor MELVIN. Yes. We have determined how it is sometimes transmitted—that animals housed in a stall by themselves, contiguous to another animal with the disease and separated by a high partition not extending clear to the ceiling, would contract the disease. We have made various experiments of that nature in order to determine how it spreads from animal to animal, and the various organs that are affected when it is artificially introduced into the bodies of guinea pigs through the feeding of milk and subcutaneous injection.

Mr. SAMUEL. What have you concluded is the cause of its spreading?

Doctor MELVIN. We have concluded that the cause of its spreading is most frequently through the ingestion of tuberculous material through eating—taking into the alimentary tract the germs of the disease. We are not inclined to the opinion that it is so generally disseminated through inhalation as has been thought heretofore.

(Witness: Melvin.)

We have produced generalized tuberculosis in the case of pigs when the lungs would become involved, where the animal was inoculated in the tail. In those cases the animal became diseased without any inhalation whatever; and in the majority of cases where the animal is fed tuberculous material, the lungs will become infected without any inhalation of the germs.

Mr. SAMUEL. I suppose that indicates that that particular part of the anatomy is less able to resist the attacks of the microbe or whatever it is?

Doctor MELVIN. It is probably carried there through the blood system to the lungs where the blood is oxidized.

Mr. SAMUEL. And you get the part that is most susceptible of attack?

Doctor MELVIN. Yes.

Mr. SAMUEL. Did you publish the symptomatology or diagnoses of those diseases?

Doctor MELVIN. We have two books that have been largely distributed; that is, the book on the diseases of the horse, ordinarily known as the "Horse Book," which treats fully of the diseases of the horse and their ordinary treatment, and another on cattle; and we did publish some years ago a report on parasitic diseases of sheep. We have now under preparation a work on the diseases and care of poultry.

Mr. SAMUEL. You do not publish those reports of these diseases in the farmers' bulletins generally?

Doctor MELVIN. Yes. We have published quite a large number of such reports on different diseases, and also regarding the remedial agents. The majority of our work is confined to contagious and infectious diseases; that is, in this experimental work. The prevention of Texas fever, as outlined in Farmers' Bulletin No. 258, saves annually \$3,812,500. The new treatment of milk fever has reduced the mortality from 70 per cent to 3 per cent, as outlined in Farmers' Bulletin No. 205, and this saves \$3,350,000 annually.

Mr. SAMUEL. Do you carry on any investigation as to the best kinds of foods for the different kinds of animals, stock-raising animals?

Doctor MELVIN. Yes. There are a number of investigations now going on with reference to the food of animals. We have one experiment which has been in progress for several years, in the State of Pennsylvania, in connection with the State agricultural college, which is a highly scientific piece of work, conducted by Professor Armsby, where various foods are taken and fed at various periods and tested as to their nutritive qualities. There is a beef-feeding investigation in connection with the Alabama Experiment Station. We have now in connection with our office of animal husbandry an experiment regarding the feeding of poultry on dry and wet feeds of various kinds; and another regarding the feeding of cotton-seed meal, and that is in order to determine if possible the causes of deaths in hogs after feeding this meal for several months.

The CHAIRMAN. Do you devote any time to the development of the breeding of horses and cattle and fowls and various animals that are raised on the farm?

Doctor MELVIN. Yes, sir.

(Witness: Melvin.)

The CHAIRMAN. With reference to the creation and improvement of breeds?

Doctor MELVIN. We have quite an extensive experiment in horse breeding in connection with the Colorado Experiment Station.

At 5 o'clock p. m. the committee adjourned until Monday, January 14, 1907, at 10 o'clock a. m.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
Monday, January 14, 1907.

The committee this day met.

Present: Messrs. Littlefield (chairman), Samuel, and Flood.

STATEMENT OF DR. ALONZO D. MELVIN, CHIEF OF THE BUREAU OF ANIMAL INDUSTRY—Continued.

The CHAIRMAN. At the adjournment Saturday you were describing the work of the Bureau with reference to the development of breeds of horses and cattle.

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Will you follow your explanation in that respect, stating briefly what you are doing along those lines, and what the purpose of that development is?

Doctor MELVIN. The Department in cooperation with the Agricultural College of Colorado has a stud consisting of 19 mares and 1 stallion. The animals were selected for the purpose of breeding a distinct type of heavy harness horse, or, in other words, an attractive and durable large carriage horse.

The CHAIRMAN. What breed are they?

Doctor MELVIN. They are of the trotting breed—American-bred horses. It is proposed out of this breed, by selection, to establish a horse which conforms quite closely to the hackney horse and the German coach horse.

The CHAIRMAN. Where were these horses purchased?

Doctor MELVIN. They were purchased by a board at various points in the United States.

Mr. FLOOD. What do you cross the standard-bred trotter with?

Doctor MELVIN. They are all of the trotting breed, and it is calculated to retain that breed by the purchase of additional sires when necessary.

Mr. FLOOD. How are you going to make a hackney out of a standard-bred trotter?

Doctor MELVIN. They will not be hackneys, in the full sense of the word, but they will be of that type and will be obtained by selection of the offspring. Those that do not appear suitable for continuance in the experiment will be rejected, and those that are will be continued, and the breeding will be continued along those lines, and, as necessary, additional blood will be purchased of the trotting strain.

The CHAIRMAN. You say these horses were purchased by a board?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. A board selected by you?

(Witness: Melvin.)

Doctor MELVIN. They were purchased before my time as chief of the Bureau. I think the board was selected by the Secretary of Agriculture, but I am not positive.

The CHAIRMAN. How long has this experiment been going on?

Doctor MELVIN. It commenced two years ago.

The CHAIRMAN. Do you know what the stallion and the mares represent as an investment to the Government?

Doctor MELVIN. Something like \$10,000. That in purchase value, first cost.

The CHAIRMAN. Do you know what trotting breed lines they follow—what family of trotters?

Doctor MELVIN. I do not think they represent any distinct strain of trotters. I have not the pedigree of the sire here. His pedigree has been published in the reports of the Department.

The CHAIRMAN. At what place in Colorado is the experiment conducted?

Doctor MELVIN. At Fort Collins.

The CHAIRMAN. Has your Department any other experiments going on there of any kind?

Doctor MELVIN. This is the only one at Fort Collins.

The CHAIRMAN. What is the annual cost of maintenance of this experiment?

Doctor MELVIN. To the Government, about \$3,500.

The CHAIRMAN. It has been going on about two years. What has been the result up to the present time?

Doctor MELVIN. I think the horses were purchased two years ago this winter. They have this year the first crop of colts by this horse, 14 in number.

The CHAIRMAN. Fourteen colts?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. You do not know what family of trotters has been selected, whether the Wilkes or Hambletonian, or which one of the leading breeds?

(Witnesses: Zappone, Melvin.)

The CHAIRMAN. What year was that?

Mr. ZAPPONE. That is a specific law. You will find it on page 6 of the appropriation bill.

The CHAIRMAN. "For experiments in animal breeding and feeding in cooperation with State agricultural stations, \$25,000." That is the authority?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And that was embarked upon in 1903?

Doctor MELVIN. In 1904.

The CHAIRMAN. Under that appropriation have any other experiments in breeding, except this in connection with the horses, been engaged in?

Doctor MELVIN. We have another horse-breeding experiment which has been undertaken in connection with the experiment station of Vermont.

The CHAIRMAN. What is that confined to, Morgans?

Doctor MELVIN. Yes, sir. We have seven mares purchased and the maintenance, stabling, etc., is provided by the State. These mares were purchased out of this appropriation.

The CHAIRMAN. Have you a Morgan stallion also?

Doctor MELVIN. We have not yet. We did not have sufficient funds to purchase the stallion. We expect to procure the services of a suitable stallion and pay for his services.

The CHAIRMAN. Is there not a large private establishment in Vermont that is devoted exclusively to the breeding and development of the Morgan horse?

Doctor MELVIN. I think there are several stock farms where Morgan horses are reared.

The CHAIRMAN. Are they located in Vermont?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Are they conducted on the lines of developing the pure Morgan horse?

Doctor MELVIN. Yes, sir; but not solely for the purpose of producing a larger type of horse such as this experiment is to undertake to produce.

The CHAIRMAN. Then you would not consider that the breeding that is now going on under private management was calculated to produce the results of developing the larger size in the breed, and the purpose of the Department in establishing a station for that purpose is to increase, if possible, the size of the breed?

Doctor MELVIN. Yes, sir. Of course, these experiments are intended to extend over a period of fifty or sixty years before a distinct type can be firmly established.

The CHAIRMAN. That is to say, you begin the experiment now and you would not expect to get the results you hope to attain until after the end of forty or fifty years?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. So that it involves a long period of time before you can determine whether or not the experiment is of value?

Doctor MELVIN. The breeding experiments already, I think, have pretty definitely shown that such an experiment will be of value.

The CHAIRMAN. You mean experiments by the Government or by private individuals?

(Witness: Melvin.)

Doctor MELVIN. By private individuals. As I understand, this experiment was undertaken by the Government because it could continue it along definite lines for a longer period than the individuals could. Some experiments have already been undertaken by individuals and were necessarily discontinued upon the death of the individual, a change of management, lack of wealth, etc., which caused the experiment to cease and the results were lost.

The CHAIRMAN. Is it the contemplation of the Government to breed horses for sale?

Doctor MELVIN. Not in this experiment; no, sir.

The CHAIRMAN. Is it ultimately, as a result of this appropriation—that is, is it the design of the Department in having an appropriation for experiments in animal breeding simply to develop the type that other people may follow, or to breed horses for sale and distribution?

Doctor MELVIN. It would be eventually both. The experiment would demonstrate the feasibility of conducting breeding along the lines that the Government is pursuing, and in the end of course the horses would revert to the people either by direct sale or otherwise. I do not know how that would be, eventually.

The CHAIRMAN. So you do not know what the definite contemplation is along those lines?

Doctor MELVIN. That, I think, would be a matter for future policy rather than the present.

The CHAIRMAN. It is your idea, if I get it aright, when the Government engages in this experimental breeding it involves continuance of purpose for a sufficient length of time to produce results, whereas if left to private enterprise the results may not be obtained on account of not being sufficiently long continued?

Doctor MELVIN. Yes, sir; exactly.

The CHAIRMAN. That is, it is impracticable to expect these results from private enterprise?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Are you experimenting in the breeding of cattle?

Doctor MELVIN. Not along the same lines. We have a breeding problem under consideration in connection with the Minnesota Experiment Station. This experiment will consist more in the observation of breeding by individuals than by purchase of animals by the Department. The State and the General Government will assist in the forming of a breeding club or circle by individual cattle owners, and these cattle will be selected under the joint selection of the State and the General Government, and the cost to the State and the General Government will be almost entirely confined to the selection of these cattle and the supervision of the future breeding experiments. The individuals who engage in this experiment will obligate themselves to follow the rules laid down by the Government regarding selection and exchange of animals for breeding. This plan has not been fully worked out, but is merely under consideration at this time.

The CHAIRMAN. Further than that you have not gone in the experiment of breeding cattle?

Doctor MELVIN. No, sir.

The CHAIRMAN. The plan that you speak of would be only a comparatively small expense to the Government?

Doctor MELVIN. Yes, sir.

(Witness: Melvin.)

Mr. FLOOD. The individuals furnish the stock?

Doctor MELVIN. The individuals furnish the cattle, and the Department selects them and possibly assists somewhat in their being obtained through paying the cost of transportation.

Mr. FLOOD. You mean that somebody at one point in the country will give to an individual at another point the cattle and only have to pay the transportation?

Doctor MELVIN. These individuals will obtain the cattle themselves, probably by direct purchase, or perhaps they may already be in possession of suitable animals for the experiment. This is to establish a breed of cattle which would be serviceable both for beef and for milk purposes.

The CHAIRMAN. The Department under that will practically furnish an expert whose advice will be acted upon by the private individuals engaged in carrying out the experiment?

Doctor MELVIN. Yes, sir. They obligate themselves to absolutely follow all the selections made by the expert of the State and the General Government, and then these cattle will in turn, as necessary, be allotted among this circle of breeders, so as to provide sires for certain individual females, as the qualifications may require.

The CHAIRMAN. To make the proper crosses?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Has that gone far enough so you have a definite idea as to what combination you will make for the purpose of producing the composite animal—that is, the best beef and milk producer at the same time?

Doctor MELVIN. No; hardly to that extent yet.

The CHAIRMAN. You can not say what breed of cattle you would use for the purpose of bringing about that result?

Doctor MELVIN. I think the breed that is under consideration is the shorthorned breed.

The CHAIRMAN. And you cross them with some other breed that are better milkers than they are?

Doctor MELVIN. No, sir. I think it was to confine the breeding to that breed of cattle and to secure by selection those that were prolific in milk and also suitable for beef.

The CHAIRMAN. The effort is to develop in some one breed those two qualities?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Not by crossing, but by combining the same breed, and by keeping that breed intact and by selection of individuals, make an effort to produce that combination?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And secure the best results in beef and milk at the same time?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Why would not that method be practicable in the matter of horse breeding, and so relieve the Government of the expense of the investment in the horses?

Doctor MELVIN. This, I think, was a plan that was submitted by the present Assistant Secretary since the horse-breeding experiments were commenced. The first horse-breeding experiment was undertaken and commenced before Professor Hays entered the Department.

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(Witness: Melvin.)

Doctor MELVIN. The results are not complete yet, but those that have been obtained are very favorable to the continuation of the experiment. We estimate their present annual value at \$100,000.

The CHAIRMAN. You mean at Orono?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. That is, you are gradually producing a fowl that will be the prolific layer you speak of?

Doctor MELVIN. Yes, sir.

Mr. FLOOD. What do you call that chicken?

Doctor MELVIN. I do not think a special name has been decided upon.

Mr. FLOOD. You say they have laid 200 eggs a year?

Doctor MELVIN. Yes, sir. In the report for 1906 it states:

Already several hens have been found to lay more than 200 eggs in one year, and the results seem to indicate that the average egg yield of a flock can be increased by selection. A bulletin describing the methods used and the results so far obtained in this work has been prepared for publication.

Mr. FLOOD. Is there any manner in which an outsider can get those eggs for breeding purposes?

Doctor MELVIN. I do not think any arrangement has been made, although I could not say positively as to that. I think that the eggs become the property of the experiment station of the State, and I can not say what disposition they do make of them.

The CHAIRMAN. What is the average lay of hens per year in the better breeds that have not had the advantage of these experiments?

Doctor MELVIN. There is a very great variation.

Mr. FLOOD. For the White Leghorn it is about 180?

Doctor MELVIN. In some seasons; there is such a tremendous variation, and I think a definite average is hardly known, although the White Leghorn is very prolific and, I imagine, would be about that—the best of them.

The CHAIRMAN. You look upon the White Leghorn as the most prolific?

Doctor MELVIN. It is one of the most prolific—I would not say the most prolific layer.

Mr. FLOOD. What chicken equals the White Leghorn?

Doctor MELVIN. I think all the Leghorns are about the same. The Brown Leghorn, the Black Spanish, and several other varieties are also large layers, but some of those are very small in size and their eggs are very small, so that the result is not what one would get if he could obtain a larger fowl which would be both serviceable for laying and for the table.

Mr. SAMUEL. Do you know what combination of breed has produced the 200 eggs a year?

Doctor MELVIN. No, sir; I could not say. Probably this bulletin speaks of that.

The CHAIRMAN. Is it the intention of the Department, when it gets this breed established or this hen developed, to put the eggs on the market for breeding purposes, or what use do they propose to make of the results of their experiments?

Doctor MELVIN. I think the Department is assisting more than anything else in conducting the experiment until it has reached completeness.

(Witness: Melvin.)

The CHAIRMAN. Does the Government own the fowls there?

Doctor MELVIN. No, sir.

The CHAIRMAN. Whose property are they—the State of Maine?

Doctor MELVIN. I think I can give you more of the details of the experiment from this book.

The CHAIRMAN. I do not know whether we care to take the time to go into the details. Are the fowls the property of the State or the United States?

Doctor MELVIN. This is very short, and I will read it:

Organization and cooperation, breeding hens for egg production. The Maine Experiment Station has been conducting investigations in breeding hens for egg production for several years and the Department is assisting them to the extent of \$1,000 a year. The study in breeding for egg production can hardly be called cooperative as yet; that of floor space was not begun until the Department entered the work, and it is therefore strictly cooperative—

That is amount of floor space for the hens—

The Department paid last year \$800 to defray the expenses of an additional poultry house and \$200 for labor. During the year 1905-6 we will pay \$400 for feed, \$500 as part of Professor Gowell's salary, and \$100 for labor. The station bears all other items of expense.

The CHAIRMAN. That "station" means the State of Maine?

Doctor MELVIN. Yes, sir.

Cost of maintenance, appropriation for general expenses, Bureau of Animal Industry (animal breeding and feeding), and funds of the Maine experiment station.

Method of procedure: The records of hens are kept individually by means of trap nests and breeding up accomplished by selection. The floor-space problem will be studied by comparing the health of hens in pens of various sizes with various amounts of floor space per hen.

The CHAIRMAN. Under that arrangement what is the understanding of the Department as to who has control of the eggs that may be ultimately produced?

Doctor MELVIN. The State.

The CHAIRMAN. The State of Maine?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. So that whatever may be done with the results of the experiment is a matter for the State of Maine, and you have been cooperating with them for the production of these results?

Doctor MELVIN. Yes, sir; we have another poultry-breeding experiment with the State of Rhode Island, that being to obtain, if we can, a breed of turkeys resistant to the blackhead disease, or enterohepatitis. In this case the station furnishes the necessary animals, grounds, buildings, pays for part of the feed, and furnishes superintendence. The Department pays \$500 of Doctor Curtice's salary, all of the salary of an assistant, \$700; and a laborer \$37 per month, \$200 for temporary fences during the first year, and \$400 for feed. The source of maintenance is the same—half from the breeding and feeding fund and half from the Rhode Island Experiment Station. Method of procedure: Turkeys will be confined in pens to note possible sources of infection. Wild birds will be purchased to note whether crosses are more resistant than domesticated stock.

The CHAIRMAN. And the product of that work is the same so far as property is concerned as in the State of Maine?

Doctor MELVIN. Yes, sir.

(Witness: Melvin.)

The CHAIRMAN. That is, whatever the result is in that line the turkeys or eggs belong to the State of Rhode Island?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. That is not for the purpose of developing and improving the breed, but for the purpose of eliminating a disease?

Doctor MELVIN. It is also to endeavor to develop a breed resistant to this disease.

The CHAIRMAN. Yes, sir; to practically make them immune to the disease?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. How long has that been going on?

Doctor MELVIN. The same length of time.

The CHAIRMAN. Have you any results there or is it not time to expect a result?

Doctor MELVIN. We have not had the experiment under observation long enough to have results yet.

The CHAIRMAN. Does that cover everything that occurs to you in connection with experimental work going on under your Bureau?

Doctor MELVIN. That is, in breeding. We have some other experiments under this same fund—one in Alabama, beef production in connection with the Alabama Experiment Station.

The CHAIRMAN. Is that on the same line as the experiments you have been describing, where you cooperate with the farmers in a certain vicinity?

Doctor MELVIN. Not exactly; no, sir.

The CHAIRMAN. This is in connection with the State experiment station in Alabama?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. How long has that been going on?

Doctor MELVIN. This was authorized December 7, 1904.

The CHAIRMAN. Is that a case where the State owns the cattle?

Doctor MELVIN. In some instances the cattle are owned by individuals and kept under observation by the Government.

The CHAIRMAN. Joint authority?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. In that case you are acting in an advisory and instructive capacity rather than in purchasing the stock and making the experiments upon the cattle of the Government?

Doctor MELVIN. To some extent the State has owned some of the cattle that have been under observation.

The CHAIRMAN. Is that for the purpose of increasing the size of the breed and the quality of the cattle?

Doctor MELVIN. Not so much as to determine the more valuable foods in that section of the country for beef production.

The CHAIRMAN. That is a question of nutrition?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Not so much development, but what is the most feasible and valuable food to develop the cattle?

Doctor MELVIN. Yes, sir; the food that is produced in that section of the country.

The CHAIRMAN. That is for the purpose of ascertaining which of those foods is the better food for producing the best results in connection with those cattle?

(Witness: Melvin.)

Doctor MELVIN. Yes, sir.

The CHAIRMAN. That is rather a food experiment than a cattle experiment?

Doctor MELVIN. It is one of those experiments that dovetails into the other.

The CHAIRMAN. Yes, sir; but the prime purpose is to ascertain the best quality of food?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. These experiments are made in relation to food produced in a certain section; are they therefore circumscribed by that area in their usefulness and value, or will they be of benefit to the breeder of cattle throughout the entire country?

Doctor MELVIN. Nothing that would generally be called local. It is confined to that section of the South and to corresponding areas in the South, but not to the northern feeder.

The CHAIRMAN. What does that relate to, grass, hay, and grain?

Doctor MELVIN. Yes, sir. The foodstuffs of the South are quite different from those of the North.

The CHAIRMAN. In what respect?

Doctor MELVIN. They can not obtain the same grasses they can farther north.

The CHAIRMAN. They have the same grain?

Doctor MELVIN. No, sir. They rely quite largely on cotton seed for food, which they do not have north, except as it is shipped north.

The CHAIRMAN. Cotton seed is an article of merchandise that goes pretty well over the entire country, is it not?

Doctor MELVIN. But it is more abundant in the South than in the North.

The CHAIRMAN. There is no difference in the cotton seed, whether it is fed in a Southern State or a Northern State?

Doctor MELVIN. No, sir; except it may be combined with different varieties of grass.

The CHAIRMAN. It depends upon the manner in which it is used?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. The principal distinction is in the grasses that they have to depend upon?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Which I suppose furnishes the foundation for the feeding of cattle in that section.

Doctor MELVIN. I think there is very little corn used for stock fattening in the South, as a rule.

The CHAIRMAN. Please state what the differentiation is between the grasses of the South and the North—that is, what kind of grasses they raise there and feed to their cattle that are not raised in other sections of the country?

Doctor MELVIN. I am not an agrostologist and I can not go into that very deeply.

The CHAIRMAN. Well, there are grasses of various kinds which are indigenous to that country which you do not find elsewhere, and the purpose of this experiment, mainly, is to ascertain which of those grasses is the most nutritious and what kind of combinations with grain or cotton-seed meal are the most advantageous and useful in producing the desired results?

(Witness: Melvin.)

Doctor MELVIN. Together with the selection of certain types of cattle for feeding. In all feeding experiments it depends very largely upon the type of animal that is selected.

The CHAIRMAN. Have you any feeding experiments going on anywhere else except in Alabama?

Doctor MELVIN. Not of that nature; no, sir.

The CHAIRMAN. Does this cover all your experimental work in the line of feeding and developing animals?

Doctor MELVIN. We undertook an experiment in introducing a Malta goat breed which turned out rather disastrously. These goats were obtained from the island of Malta, and almost immediately after the purchase of these goats it was determined that they were carriers of a disease which might be transmitted through the milk to people, and known as Malta fever. It was ascertained that this disease existed among these goats and for that reason they were never placed in an experiment. It was originally decided to carry on this experiment in connection with the experiment stations of Connecticut and of Maryland, but we had to retain our possession of the goats and keep them in quarantine in our experiment station at Bethesda.

The CHAIRMAN. What was it proposed to do with the goats in case they proved to be free of disease?

Doctor MELVIN. A portion of the goats were to be sent to the experiment stations, and it was proposed to demonstrate the valuable features of goat milk for the use of invalids and infants and also for small family use.

The CHAIRMAN. With a view to the general introduction of goats for milk-producing purposes?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. How long ago was that experiment started?

Doctor MELVIN. That was started in October, 1905.

The CHAIRMAN. Has that been abandoned for the reason you have given?

Doctor MELVIN. Not entirely. We of course could not do anything more until we had eliminated this disease from the goats. Already quite a large proportion of them have died and except for the prolific nature of the goats they probably all would have been dead; but they have increased very rapidly, bearing quite frequently two to three kids to one mother, so that while the number of old goats has been diminished very largely, there has been quite a large number of new ones.

The CHAIRMAN. Was it the intention of the Department that goats could produce milk in competition with cows of various kinds as a commercial proposition?

Doctor MELVIN. Hardly on that scale, perhaps, but this would furnish a milk food which was much better for the use of invalids and infants than cow's milk, and also introduce a small animal which would supply an ordinary family with sufficient milk for its use.

The CHAIRMAN. And produce milk of better value?

Doctor MELVIN. Yes, sir; for infants and invalids.

The CHAIRMAN. The size of the animal and the ease with which it can be taken care of made it more easily and readily available to a larger number of persons with a small investment?

(Witness: Melvin.)

Doctor MELVIN. That was one of the reasons. The milk of the goat seems to be better for the use of invalids and infants. It seems to be more nutritious and has less of the undesirable features of cow's milk.

The CHAIRMAN. Has the Department ever investigated the question as to whether, where they now thrive in their native country, they can produce milk cheaper, per quart, taking into account the quality of milk, than it can be produced by the cow?

Doctor MELVIN. These goats came from the island of Malta, which is nearly a barren island, so I do not think such a comparison has been made. Nearly all their food is imported, and the goats on the island live very largely on the refuse from the tables.

The CHAIRMAN. Is the Department able to tell from the experience it has had that there is any difference in the relative cost per quart of milk produced by the goats or cows?

Doctor MELVIN. We have not been able to determine that on account of having to abandon the milk feature of the experiment and confine ourselves to the eradication of the disease among the goats, so we have not any information along the line of the comparative value of the milk.

The CHAIRMAN. That is a part you have not investigated?

Doctor MELVIN. No, sir.

Mr. SAMUEL. Does the milk of these goats more nearly approach the milk of the human female than that of the cow?

Doctor MELVIN. Yes, sir; I think it has a larger sugar content and less casein than cow's milk and about the same quantity of fat as cow's milk.

Mr. SAMUEL. Have you experimented with children as to how they will stand it or thrive on it?

Doctor MELVIN. Not with these goats. We have not used the milk of these goats at all, but the Department has had considerable information regarding the use of goat's milk for children, and these reports indicate that it is a very fine food for infants.

Mr. SAMUEL. Have your experiments demonstrated about how much milk one of these goats will give a day?

Doctor MELVIN. No. We have not been able to use their milk at all, and for that reason we did not undertake to keep up the milk supply. Some of these goats are said to give as high as 6 quarts of milk a day.

The CHAIRMAN. It is in Connecticut where this station is located?

Doctor MELVIN. Connecticut and Maryland. We anticipated cooperating with those two stations.

The CHAIRMAN. You say "cooperating" with them; who purchased the goats, the Government?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. What has been the expense of that experiment up to date, approximately speaking? You need not take the time to give it to us precisely.

Doctor MELVIN. I think it is in the 1905 report; the cost was about \$4,000. Then there is the zebra hybrid breeding experiment.

The CHAIRMAN. What is the purpose of that?

Doctor MELVIN. To obtain the cross between the zebra and the mare.

(Witness: Melvin.)

The CHAIRMAN. How long has that been going on?

Doctor MELVIN. That has been under way about two years.

The CHAIRMAN. What is the expectation of the Department in connection with that experiment?

Doctor MELVIN. To produce an animal having more style and better qualities than the ordinary mule.

The CHAIRMAN. What is that, a crossing of the male zebra on the mare?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. That has been going on how long?

Doctor MELVIN. About two years.

The CHAIRMAN. Where is that located?

Doctor MELVIN. It is now at our experiment station at Bethesda. The zebra is there. There were two zebras presented to the Department, a male and female, by the King of Abyssinia, or rather by his next man in charge. The female died en route and the male arrived here, and was during the winter turned over to the Zoological Park for maintaining. In the spring when it was let out it ran against a woven-wire fence and broke its neck. The zebra we have now is one presented to the President by the King of Abyssinia. The cost has not been very great, not much more than the simple maintenance of the zebra. The greatest cost is in the purchase of some mares which we were expecting to breed him to. Part of these mares have been in the custody of the Zoological Park—they have used them for work purposes—and part of them are in our possession at the experiment station at Bethesda, where they are used as work animals. We have not yet succeeded in breeding the male to any of the mares.

The CHAIRMAN. On account of what?

Doctor Melvin. He does not seem to have any desire for them whatever. The mares become frightened immediately he approaches and he does not seem to have any desire to mingle with them. We hope in the spring to breed him either to a jennet or a small mare, and, by artificial impregnation, impregnate several mares.

The CHAIRMAN. Have you the mares of large size for that purpose?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Up to date that has simply resulted in an effort to breed?

Doctor MELVIN. Yes, sir; that is all. Those, I think, are all the projects we have under this appropriation.

The CHAIRMAN. Have any experiments ever been made anywhere with reference to crossing zebras with horses that you know of?

Doctor MELVIN. Yes, sir; several successful experiments have been made. The progeny is a very beautiful animal, a very beautiful and active animal, but, I think, so far those crosses have been of the smaller size zebra. The zebra we hope to breed from is a very large animal, much larger than the average zebra shown in menageries.

The CHAIRMAN. The one the Department is now experimenting with is one of the choice breeds?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Being a present to the President, he would naturally be of that character?

Doctor MELVIN. He is a beautiful animal—very large.

(Witness: Melvin.)

The CHAIRMAN. How high will he stand?

Doctor MELVIN. Fifteen-two hands.

The CHAIRMAN. And probably weighs a thousand pounds?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Have zebras ever been broken for driving or riding purposes?

Doctor MELVIN. I think they have. This cross is quite readily broken.

The CHAIRMAN. That is the progeny resulting from the cross?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And do they prove to be hardy and capable?

Doctor MELVIN. I think they are. The menagerie man, Hagenbach, has some that he uses in his circus right along traveling throughout the country.

The CHAIRMAN. Crosses?

Doctor MELVIN. Yes, sir; of the small variety.

The CHAIRMAN. Now, turn to the matter of expenditures. Have you any high-salaried men or scientific men besides Doctor Wray in London on a per diem?

Doctor MELVIN. No; I think not.

The CHAIRMAN. How does his compensation happen to be fixed by per diem and not by lump sum when he succeeds in getting in every day in the year?

Doctor MELVIN. I can hardly explain the way his salary was first fixed at a per diem rate. The Department has never seen fit to change it, considering it a reasonable rate for the services rendered.

Mr. SAMUEL. Has he special qualifications for the position that would demand such a high salary?

Doctor MELVIN. Yes; I would consider so.

Mr. SAMUEL. What is the nature of his work?

Doctor MELVIN. He has charge of the observations made regarding the landing of American live stock in England and in the case of the finding of disease or alleged disease by the English veterinarians, it is his duty to investigate and ascertain from his point of view what the disease or trouble is and to report to this Government.

The CHAIRMAN. Does not he make the observations himself in the case of cattle landing?

Doctor MELVIN. Yes, sir; at London, but there are other ports where cattle are also landed that he does not visit.

The CHAIRMAN. That is Liverpool?

Doctor MELVIN. Liverpool and Glasgow. They are the principal markets.

The CHAIRMAN. You have one man at Liverpool. Do you have another man at Glasgow?

Doctor MELVIN. No, sir; not now. We have not considered it necessary in recent years to keep a man there, as the Scotch veterinarians have not found any disease—that is, pleuro-pneumonia. That was the disease on account of which he was originally stationed in England.

The CHAIRMAN. Do we understand that he personally inspects every cargo of cattle that is landed in London, or does he inspect only such as his attention is called to?

(Witness: Melvin.)

Doctor MELVIN. No, sir. I think he personally inspects them when in London. Occasionally it is necessary for him to visit different parts of the island, and of course in his absence he could not do that, and unless some disease was found in his absence he would not see any of them.

The CHAIRMAN. He visits various parts of the island?

Doctor MELVIN. Yes, sir; occasionally; not frequently.

The CHAIRMAN. On an inspection tour?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. What does he inspect then?

Doctor MELVIN. We may consider it advisable for him to visit some of these different ports where cattle are landed, such as Newcastle or Hull or Bristol, where but occasional shipments are made. The main ports are Liverpool, London, and Glasgow, and occasional shipments are made to these smaller ports. For some reason we may desire him to ascertain why some unusual condition occurred in a shipment, and he would proceed there and obtain that information for us.

The CHAIRMAN. Does he go away from London for any other purpose than those you have just described?

Doctor MELVIN. No; I think not.

The CHAIRMAN. Does he have any employees under him in London?

Doctor MELVIN. Not in London. He has one stationed at Liverpool.

The CHAIRMAN. He has a man who receives \$2,500 salary?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. He is a man who is competent to discharge all the duties that devolve on the Department there without any assistance, is he not?

Doctor MELVIN. No. In case any difficulty arose at Liverpool it would be referred by him to Doctor Wray.

The CHAIRMAN. Is not the inspector at Liverpool a practical veterinarian?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Professionally educated?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. A man of scientific knowledge and education?

Doctor MELVIN. Well, we would not consider him as expert in the case of pleuro-pneumonia as Doctor Wray, Doctor Wray having had a great many years' experience in dealing with that disease, and the present inspector at Liverpool not having had that experience. The veterinarian at Liverpool also has other duties to perform besides the inspecting of cattle landed there. For instance, he makes very short trips over the islands to test with tuberculin cattle for export to the United States.

The CHAIRMAN. They do not export cattle here except for cattle breeding purposes?

Doctor MELVIN. That is all. They have to be tested with tuberculin before being shipped.

The CHAIRMAN. Do you require a tuberculin test of all breeding cattle exported from Great Britain to this country?

Doctor MELVIN. Yes, sir.

(Witness: Melvin.)

The CHAIRMAN. Have you any power to enforce a regulation like that in England?

Doctor MELVIN. If it were not done there it would be done after the arrival of the cattle in this country.

The CHAIRMAN. That is very true.

Doctor MELVIN. Inasmuch as the cattle would have to be slaughtered and the purchasers, who are citizens of this country, would suffer very great loss, it was considered more advisable for the Department to station an agent in England and test the animals there and then reject them for shipment in case they reacted, and also prevent the animals ever landing in the United States.

The CHAIRMAN. That is very true, but can this agent prevent the shipment of any cattle from Great Britain to the United States?

Doctor MELVIN. After he knows that they have reacted?

The CHAIRMAN. Yes, sir. Has he any power to do that, or is it a matter of comity?

Doctor MELVIN. Upon his informing the steamship lines, I think they would refuse to ship the cattle.

The CHAIRMAN. He has no power to stop the shipment?

Doctor MELVIN. No, sir; none whatever.

The CHAIRMAN. If he succeeds in stopping it, it is either because the people who are shipping do not want to take the chance, or the steamship companies do not want to take the chance of transporting the cattle?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. How does he keep advised of the shipments to be made?

Doctor MELVIN. Before any animals are permitted to come to this country the importer must obtain a permit from the Agricultural Department. When this permit is obtained the inspector in England is immediately informed, and he then proceeds to test the animals that are in question.

The CHAIRMAN. Under the regulations of the Department of Agriculture, you do not allow any animals to be landed that are from foreign countries unless the importer can present a certificate showing that an inspection was had of the cattle before shipment to this country?

Doctor MELVIN. Not quite that. We occasionally permit imports of cattle without inspection, say, from the island of Jersey, where tuberculosis does not exist.

The CHAIRMAN. Is that the regulation, unless the Department waives it, as in the case of cattle from the island of Jersey?

Doctor MELVIN. That is the existing regulation—that animals from the island of Jersey may be imported without the veterinary inspection on the other side, but in case of cattle from England or Holland or Belgium they would be subjected to the tuberculin test before they were permitted to be shipped, and before this test is made they must obtain from the Agricultural Department a permit for landing in this country, and this permit would assign to them the use of one of three quarantine stations which we have, one near Boston, one near New York, and one near Baltimore.

The CHAIRMAN. While you have no power to prevent the shipment

(Witness: Melvin.)

of cattle that are imported into this country from Great Britain and any point in Great Britain, you practically control it by the regulations that regulate their introduction here?

Doctor MELVIN. We can regulate their shipment by refusal to give this permit, and our consuls are instructed not to permit the shipment of any cattle to this country until this permit is first obtained.

The CHAIRMAN. How can our consuls over there prevent the shipment of goods from Great Britain to the United States?

Doctor MELVIN. I think they have to get some official clearance, if you will permit that term, from the consular agent before they are shipped.

The CHAIRMAN. That is your understanding, that a vessel sailing between Liverpool and the United States requires a certificate of some character from the American consul before they can clear cattle intended for the United States?

Doctor MELVIN. Yes, sir. I think that for all merchandise they have to obtain a consular certificate before it can be cleared or before it can be landed here.

The CHAIRMAN. That may be before landing here. I think perhaps that may be the proposition you may have in mind. In any event, you have a regulation that has been adopted by virtue of the authority of the Department of Agriculture that prevents the landing unless certain certificates that have been required by the Department accompany the importation?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. That may be the way in which it can be regulated. It may not regulate the shipping, but prevent the landing, which amounts to the same thing. In connection with breeding cattle for importation to the United States, before the shipment takes place the transportation companies submit the matter to the Department?

Doctor MELVIN. No; the importers.

The CHAIRMAN. The importers; and the Department is then advised of the proposed shipment and the cattle are examined by your expert?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And it is on the strength of that certificate that the landing is allowed in this country?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. The man at Liverpool does that work for Great Britain?

Doctor MELVIN. Yes, sir; and he occasionally makes trips to the Continent. Usually his traveling expenses are borne by the exporter when he goes to the Continent, but not his salary.

The CHAIRMAN. Because that is outside of his jurisdiction?

Doctor MELVIN. Yes, sir.

Mr. SAMUEL. What is his salary?

Doctor MELVIN. Two thousand five hundred dollars.

The CHAIRMAN. Have you agents like that in any other country?

Doctor MELVIN. No, sir.

The CHAIRMAN. Does Doctor Wray have any of that kind of work to do?

Doctor MELVIN. Not ordinarily. He may at times.

(Witness: Melvin.)

The CHAIRMAN. But, as a rule, that does not come within the scope of his duties?

Doctor MELVIN. No, sir.

The CHAIRMAN. If you know, please state just the kind of work that Doctor Wray does with reference to the inspection of a vessel loaded with cattle that arrives in London.

Doctor MELVIN. Deptford is the place of landing.

The CHAIRMAN. Does he go down there and personally inspect all the cattle?

Doctor MELVIN. Yes, sir. Of course, he is informed of the shipment and knows of the probable arrival of the vessel. Occasionally there is a lighter which goes down the Thames as far as Gravesend, and oftentimes the cattle are transhipped onto this lighter, and that comes up the river and the cattle are unloaded at Deptford. Sometimes a vessel will transfer immediately to Deptford without being lightered. I presume that is according to the state of the water in the river; according to the tide, perhaps. Each day he makes a visit to keep in touch with the work and to see those landed and also the results of slaughtering; whether any disease has been observed by the English veterinarians; and if so, he immediately proceeds to inform the Department of the nature of it.

The CHAIRMAN. Does he inspect each one of a load of cattle when they are being discharged, or when discharged, or afterwards?

Doctor MELVIN. Some time afterwards. Sometimes they are unloaded at night. He is not present at night, as he could not inspect them on account of there not being sufficient light; but where they are unloaded at night he inspects them in the lairage.

The CHAIRMAN. And he goes through the herd one by one?

Doctor MELVIN. They are tied in rows and he proceeds to walk past them.

The CHAIRMAN. Is that all the inspection—he simply walks past them?

Doctor MELVIN. Yes, sir; and observes whether any show signs of illness. If they do, he will ascertain at the time of slaughter what that trouble is.

The CHAIRMAN. If they do not show signs of illness he passes right along?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Can an effective inspection be made in that way?

Doctor MELVIN. Yes; it is about the only practical inspection that could be made. It would be impossible for him to examine each one of the individuals. You understand many of these animals are wild range cattle, and it would be impossible without completely tying the animal's feet and throwing him to make an examination.

The CHAIRMAN. The fact is that the inspection of a cargo of cattle by Doctor Wray is a matter of relatively very short time. He could walk through a carload of cattle in twenty minutes, and he does not devote attention to every individual unless it develops in the slaughtering that there is disease or unless his attention is called to disease by some of the British experts. Is that about the size of it?

Doctor MELVIN. Yes, sir.

(Witness: Melvin.)

The CHAIRMAN. So that the work of inspection that he does on a cargo of cattle would take him relatively a very little time, unless his attention was called to some unusual condition.

Doctor MELVIN. Considering the distance of Deptford from the center of London, or from where his place of residence is, of course it does consume more time.

The CHAIRMAN. Sometimes the cattle are discharged at Tilbury?

Doctor MELVIN. No; I think not.

The CHAIRMAN. I was on the *Minnetonka* a year ago last fall, and we discharged a lot of cattle at Tilbury.

Doctor MELVIN. My impression was that all the American cattle were landed at Deptford.

The CHAIRMAN. That is not material. Is this work of such a character as to keep him continually employed, seven days in the week?

Doctor MELVIN. Yes, sir. Cattle are more frequently landed on Sunday than almost any other day of the week. While I was stationed at Liverpool, for nearly two years, I visited the lairage more frequently on Sunday than any other day. It is usually the practice to land cattle during the week's end, extending until Sunday and Monday.

The CHAIRMAN. How long a time did you spend at Liverpool?

Doctor MELVIN. Almost two years.

The CHAIRMAN. You are familiar with the details of that work?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Did your work in Liverpool keep you employed every day?

Doctor MELVIN. Not every day, although I usually did visit the slaughtering establishment every day. There were days when I did that on account of having nothing else to do.

The CHAIRMAN. Precisely. There would be days when you would not have very much to do. How many days in the week would you be necessarily occupied the full day in the discharge of such duties as you had at Liverpool while you were there?

Doctor MELVIN. That is rather a difficult question to answer.

The CHAIRMAN. You say that some days you visited the slaughtering establishment because you had nothing else to do?

Doctor MELVIN. Some days, when I finished the inspection, and unless something extraordinary occurred after that time there would be no necessity for my being there, and other days I was there at daybreak and stayed there until nightfall.

The CHAIRMAN. You stated that there were days when you had nothing else to do but to visit the—

Doctor MELVIN (interrupting). The lairage.

The CHAIRMAN. How do you spell that?

Doctor MELVIN. L-a-i-r-a-g-e.

The CHAIRMAN. How often would that be the case?

Doctor MELVIN. Not oftener than one or two days a week, and frequently there would be many weeks when there would not be that many days.

The CHAIRMAN. Are there more cattle shipped to London than to Liverpool?

Doctor MELVIN. There are more shipments of cattle to London than

(Witness: Melvin.)

to Liverpool. The shipments are fewer to Liverpool, but larger in number. The larger steamers go to Liverpool.

The CHAIRMAN. Liverpool is the best port?

Doctor MELVIN. I do not know just why it is, but a very large part of the cattle that are shipped to Liverpool are slaughtered there and the dressed meat is subsequently sent to London; but Liverpool has been, and I think is still, the largest port of the three principal ones.

The CHAIRMAN. Your idea is that there would be more cattle in number, but fewer vessels?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. On account of the larger size of the vessels?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And while there would be less cattle in number shipped to London, there are more shipments on account of the small size of the vessels?

Doctor MELVIN. Yes, sir. There is not a very great difference in the number; they are quite close together, but there are more vessels sailing to London than to Liverpool.

The CHAIRMAN. The cattle vessels?

Doctor MELVIN. Yes, sir. For instance, many of these shipments that go to London are split up and a part of them will be unloaded and stay in England and the balance will proceed to the Continent of Europe, either to Rotterdam or Antwerp, principally Antwerp, and in those cases it is the policy of Doctor Wray to go down on the lighter and visit the cargo before it is subdivided. While I was stationed there it was necessary for me to go to Germany to inspect the balance of a cargo that went there. The part landed in London, England, showed signs of contagious pleuro-pneumonia, and in order to get all the information we could Doctor Wray ordered me to proceed to Hamburg and inspect the rest of them, which I did.

The CHAIRMAN. What is the principal symptom of contagious pleuro-pneumonia?

Doctor MELVIN. The symptoms vary but slightly—that is, the gravest symptoms—from those of ordinary pleuro-pneumonia in cattle. Of course, there is an acceleration of temperature.

The CHAIRMAN. What are the symptoms in cattle that would be obvious in the incipient stage of the disease?

Doctor MELVIN. In all cases of the disease there would be the extreme temperature, the rapid breathing, and the loss of respiration in the affected portion of the lung, which would be observed by listening to the sounds in the chest.

The CHAIRMAN. They are the symptoms that would be seen when walking along without stopping to examine each particular individual?

Doctor MELVIN. One would immediately notice the first symptom, which would be the accelerated breathing and the animal holding his head down and not eating or drinking as the others would.

The CHAIRMAN. Is that characteristic of the early or the advanced stage, or both?

Doctor MELVIN. Both.

The CHAIRMAN. That is the symptom which a man would probably have his attention attracted to if he was walking along?

(Witness: Melvin.)

Doctor MELVIN. Yes, sir. Then, again, he reports on any disease which he may observe among the cattle. In former years it was quite frequent that Texas fever would develop among the cattle.

The CHAIRMAN. What is the Texas fever?

Doctor MELVIN. They would contract the disease en route to that country either on cars or steamers that had previously carried southern cattle, and by the time they reached there, or sometimes before, the disease would develop. Those cases he would report on, and we would proceed to investigate to see if we could ascertain the source of infection. Our system of inspection, vessel regulations, inspection of vessels and cattle previous to shipment, and the management of southern cattle in this country, all these together have resulted in the diminution of loss in export live stock from 10 to 15 per cent to less than one-half of 1 per cent.

The CHAIRMAN. Does not the English Government have inspectors that inspect these cattle also?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And no cattle can be landed without it passes their inspectors?

Doctor MELVIN. The inspection is made after the cattle are landed.

The CHAIRMAN. The inspection, at any rate, is made before they are slaughtered?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. So that, before the cattle reach the consumer in Great Britain, they have gone through an inspection by the inspectors appointed by Great Britain?

Doctor MELVIN. They are inspected simply with reference to contagious diseases, not as to whether or not they are fit for food. It is merely an ante-mortem inspection, not a post-mortem inspection, simply to determine whether the animals are afflicted with a contagious disease which might be communicated to their own animals.

The CHAIRMAN. The English Government pays no attention whatever to the question of the fitness of the cattle for food?

Doctor MELVIN. No, sir; not the General Government.

The CHAIRMAN. Is that a matter to which the attention of our inspectors is especially directed?

Doctor MELVIN. As to the fitness for food?

The CHAIRMAN. Yes, sir.

Doctor MELVIN. That inspection is made before shipment from this country.

The CHAIRMAN. So there is no need of that at the other end?

Doctor MELVIN. No, sir.

The CHAIRMAN. Is there any occasion for an inspection on the part of your Bureau in Great Britain, except what may be verified by the English inspectors?

Doctor MELVIN. We consider it very important.

The CHAIRMAN. Is there any occasion except for the purpose of verifying their inspection?

Doctor MELVIN. As I explained the other day, in addition to the inspection of cattle it is necessary for them to report in case of any unusual state of the cattle en route.

The CHAIRMAN. I want to confine this right now to the question of inspection. Is there any occasion for the inspection by your

(Witness: Melvin.)

Bureau in Great Britain except for the purpose of verifying the inspection made by the inspectors of Great Britain, so far as the inspection proposition is concerned?

Doctor MELVIN. And furnishing us with information regarding any unusual condition which might exist and which we would not get from the English veterinarians.

The CHAIRMAN. What unusual conditions? I do not understand that you inspect for the purpose of ascertaining the food value.

Doctor MELVIN. For instance, there might be a question which has recently come up with reference to the shipment of pregnant cows, whether or not this shipment was objectionable to the English people. Our inspectors on this side inspect the cattle and when they are not far advanced, that is what we consider within two months of parturition they would be passed. We would pass them in this country at that stage. It might be possible on account of the trip, storms, etc., that these animals would have an unusual number of cases of abortion and arrive in an objectionable condition; anything of that nature it would be their place to call to our attention in order that we could increase the inspection here, tighten it up, and make it less objectionable to the English Government.

The CHAIRMAN. I do not see why that information could not be communicated here directly by them.

Doctor MELVIN. They do not do so.

The CHAIRMAN. You have to have somebody there to call attention to it?

Doctor MELVIN. Well, it might come in an indirect way. A great deal of our information that our inspectors collect does not come from English officials direct, but we get it from those in the trade.

The CHAIRMAN. If there was not any complaint on the part of the English officials or on the part of the consignees there would not be any occasion for the additional investigation?

Doctor MELVIN. We try to anticipate any objection on their part rather than to wait until they make it, because it might be made in such a way that it would be very hard for us to remedy it afterwards.

The CHAIRMAN. As to the matter of shipping at various stages of gestation, of course, if it is once determined that a cow is in such an advanced stage of gestation nobody will ship it. That simply takes care of it in the future. That would not arise later on.

Doctor MELVIN. That would be true.

The CHAIRMAN. I do not fully appreciate the importance of an inspection in Great Britain after we have already once inspected here and when the British inspectors are also inspecting.

Doctor MELVIN. The claim by English veterinarians that pleuropneumonia existed in this country would be considered a very serious matter.

The CHAIRMAN. Yes, sir.

Doctor MELVIN. And unless our veterinarians were there to verify their diagnosis or disprove their diagnosis we would have no redress whatever.

The CHAIRMAN. That comes right down to the question of verification?

Doctor MELVIN. It has occurred in former years in a number of instances where the English veterinarians pronounced our cattle

(Witness: Melvin.)

infected with contagious pleuro-pneumonia where by our system of inspection and tagging of export cattle we were able to prove conclusively that they came from a section of the country, perhaps in Nebraska or Kansas or from some other far western State, where pleuro-pneumonia had never existed—never been found.

The CHAIRMAN. That would contraindicate the existence of it, but not demonstrate it?

Doctor MELVIN. The demonstration of it is very largely a matter of information, because until within the last few years it has been impossible to know the cause of the disease.

The CHAIRMAN. You have not been able to demonstrate the manner in which it is transmitted?

Doctor MELVIN. You could not prove it, as in the case of tuberculosis, where you find the particular bacilli and demonstrate it in that way.

The CHAIRMAN. That is the organic change?

Doctor MELVIN. Yes, sir; in contagious pleuro-pneumonia.

The CHAIRMAN. I appreciate the fact that the work of our inspectors in Great Britain is in the main incidental or auxiliary to the inspectors appointed by Great Britain and for the purpose of verifying their results.

Doctor MELVIN. I would consider their services mainly supplemental to the inspectors whom we have in this country who are engaged in the same kind of work—that is, in the inspection of export cattle and vessels.

The CHAIRMAN. As a rule, do they examine individual cattle for the purpose of ascertaining their physical condition?

Doctor MELVIN. Very frequently.

The CHAIRMAN. Unless in the first instance some abnormal conditions have been disclosed by the English inspectors?

Doctor MELVIN. Very frequently; yes, sir. It is usual, however, for all to remain away from these cattle except those who have to tie them up and care for them until after the English veterinarian has finished his inspection—that is, where the cattle are already tied up, as during the night. In the daytime, however, Doctor Wray would be present and see the cattle as unloaded from the vessel—probably at the same time that the English veterinarian was there. He has been there when the English veterinarian was not there. It is not often that the English veterinarian proceeds down the river to see the cattle.

The CHAIRMAN. For the reports of your inspectors and the work of your Bureau do you have the calendar year or the fiscal year?

Doctor MELVIN. Our reports go by the fiscal year.

The CHAIRMAN. For the year ending December 31, 1905, how many actual examinations of cattle were reported by Doctor Wray?

Doctor MELVIN. He does not make a formal daily report. He reports by letter and weekly reports.

The CHAIRMAN. How many letters did he write calling attention to the fact that he had made examinations of individual cattle?

Doctor MELVIN. I would not be able to say. I do not think there were many letters from him on that account. Our cattle were landed in very good condition.

(Witness: Melvin.)

The CHAIRMAN. Has the Department any way of knowing how many individual cattle were examined by Doctor Wray as indicating the amount of work he has actually been obliged to perform in the discharge of such duties as he has there?

Doctor MELVIN. We have a weekly report that he makes for each of the various ports where cattle are landed. At Deptford and at London he will collect his own information. At Liverpool our inspector there will collect the information. The report shows the number of cattle, the vessels they were shipped on, the shipper, the consignee, the number lost en route and the cause, if he can ascertain the cause, of the loss, and then there is another column for remarks, where, in case there would be any extraordinary report, he would make a note of it.

The CHAIRMAN. Would he make a note if he made a physical examination of any cattle?

Doctor MELVIN. In case there was any unusual circumstance he would; otherwise he would not.

The CHAIRMAN. How long has Doctor Wray been there?

Doctor MELVIN. Sixteen years.

The CHAIRMAN. I wish you would look back over the files of the Department for, say, five years ending December 31, 1905, and give us a statement of what the record shows as to how many physical examinations he has been called on to make during that time.

Doctor MELVIN. I do not think that would show the work of the Doctor, because—

The CHAIRMAN (interrupting). I do not know whether it would or not.

Doctor MELVIN. That information has not been recorded by him.

The CHAIRMAN. I do not know. I would like to have what the records show on that point. I do not know what they would show. That seems to be the larger part of his work, if I get it correctly. I do not know what the records will show, but if you will be kind enough to give us what the records show on that point we will be obliged.

Doctor MELVIN. In the five years ending December 31, 1906, Doctor Wray has reported the arrival at London of 1,446 vessels, carrying 700,376 head of cattle, 84,857 head of sheep, and 6,502 head of horses; nearly 95 per cent of these were American animals. He has also reported upon the arrival of 814 vessels at other British ports carrying 161,077 head of cattle, 35,647 head of sheep, and 1,654 head of horses. He has also rendered about 100 special reports relating to the losses of animals at sea, the conditions other than normal of all those landed alive, and, when occasion required, the post-mortem findings of diseased animals at slaughter.

This office has no information regarding the reports of the foreign veterinarians concerning the condition of American cattle landed in Great Britain, and is therefore unable to determine the number of instances where the opinion of Doctor Wray differs from that of the English veterinarians. For several years there has been no report made to this Government regarding the finding of contagious pleuropneumonia among American cattle.

(Witnesses: Melvin, Zappone.)

*Doctor Melvin concerning Doctor Wray's work.*DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
Washington, D. C., January 21, 1907.

DEAR SIR: Referring further to your request for information as to the nature of the services performed by Doctor Wray in addition to his inspection of animals from the United States, I would state that he acts as the foreign representative of this Department in various matters pertaining to agriculture. Many questions have been referred to him for investigation; and all agricultural matters which he considers of interest to the Department are called to the attention of this Office.

During the prevalence of the foot-and-mouth disease in New England it was principally through his representations to the English Government, by direction of this Office, that the ports through which American cattle were exported, outside of New England, were kept open for live stock for England. There was very great danger at that time that all live stock from the United States would be prohibited entry into the United Kingdom. His familiarity with the work of this Department, and particularly of this Bureau, enables him to make such representation as could not otherwise be obtained.

Doctor Wray has always held a high place in the veterinary profession of this country, and at the time of his selection for service abroad was the State veterinarian of Maryland.

Very respectfully,

A. D. MELVIN,
Chief of Bureau.

HON. CHARLES E. LITTLEFIELD,

Chairman Committee on Expenditures in the Agricultural Department.

The CHAIRMAN. I wish you would go right on and explain further about his work. I understand the employment of Doctor Wray, by this report, shows 365 days of employment in the year, he having a per diem. Has the Department ever taken any steps to ascertain whether or not, as a matter of fact, independent of the services performed by the doctor, he is really actually employed there 365 days in the year?

Doctor MELVIN. No; we have to leave that to his own statement, because we have no one else there to supervise his work.

Mr. SAMUEL. You have no reports to verify his statements?

Doctor MELVIN. No, sir; he might very frequently visit Deptford and he would not make a daily report for that work.

The CHAIRMAN. Has the doctor always filed certificates covering every day in the year?

Doctor MELVIN. He makes weekly reports.

The CHAIRMAN. Do the certificates for his compensation cover every day in the year?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Will you look in the book for the same five years, so that we can see about that?

Mr. ZAPPONE. The statement called for is as follows:

Services of Dr. W. H. Wray.

Fiscal year 1902, worked 365 days, at \$12.50 per day-----	\$4, 562. 50
Fiscal year 1903, worked 365 days, at \$12.50 per day-----	4, 562. 50
Fiscal year 1904, worked 366 days, at \$12.50 per day-----	4, 575. 00
Fiscal year 1905, worked 365 days, at \$12.50 per day-----	4, 562. 50
Fiscal year 1906, worked 365 days, at \$12.50 per day-----	4, 562. 50

Mr. SAMUEL. Are the conditions such that they must of necessity make Sunday examinations?

The CHAIRMAN. He says there are some cases.

(Witnesses: Melvin, Zappone.)

Mr. SAMUEL. Are the conditions such that they require Sunday examinations, or could they be held over until Monday to be examined?

Doctor MELVIN. No; the examinations could not wait on Doctor Wray. They might wait on the English veterinarian, but they would not wait on the American veterinarian. He would have to be there, or else he would not see the cattle. They would be slaughtered and disposed of.

The CHAIRMAN. All times of day; all days?

Doctor MELVIN. Yes, sir. Well, probably not every day, but most days.

The CHAIRMAN. Well, they may arrive on Sunday?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And on arrival, if I can judge anything from what I have seen, there is a pretty vigorous necessity to get the ship discharged at the earliest possible moment?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. They do not wait for week days or Sundays; I suppose that is true, is it not?

Doctor MELVIN. Yes, sir.

Mr. SAMUEL. Are the character of work and the qualifications necessary for an inspector in London so much different from those of Liverpool as to cause a difference in the compensation?

Doctor MELVIN. Well, the expense of the one station in London as compared with the one in Liverpool is considerably greater. The mingling with these different people, and obtaining information from them, causes considerable personal expenditure on his part, for which he could not be reimbursed.

Mr. SAMUEL. Why does not our Department have those things under that head instead of salary?

Doctor MELVIN. I do not think there is any provision for it otherwise.

The CHAIRMAN. This is a lump-sum appropriation, is it not, to be expended in the discretion of the Secretary? Mr. Wray has expenses here—traveling expenses and reimbursement for station and field expenses—small sums, to be sure.

Mr. SAMUEL. And aside from his social expenses, official expenses, I think, should be borne by the Government.

Doctor MELVIN. Well, I do not think he has much expense beyond his salary.

Mr. ZAPPONE. \$73.79 for station and field expenses, and \$57.59 for traveling expenses.

The CHAIRMAN. This small sum of \$57.59 for traveling expenses would indicate that he had very little traveling to do, would it not?

Doctor MELVIN. Yes, sir. He does not do very much traveling outside of London.

The CHAIRMAN. He just pays his way when he does travel, does he not?

Doctor MELVIN. Yes.

The CHAIRMAN. When he makes these trips down to Deptford he has to pay?

Doctor MELVIN. Yes.

The CHAIRMAN. That is, he has car fare down there? That is a steam railroad, is it not?

(Witnesses: Melvin, Zappone.)

Doctor MELVIN. I am not sure that he has. I rather think that that is not allowed.

The CHAIRMAN. What is not allowed?

Doctor MELVIN. His railroad fare down to Deptford and return.

The CHAIRMAN. Well, what are his traveling expenses?

Doctor MELVIN. Well, outside of the city of London.

The CHAIRMAN. Well, Deptford is not in London, is it?

Doctor MELVIN. I think it is.

The CHAIRMAN. You mean within the county limits?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. They have a city of London and a county of London. Is Deptford nearer London than Tilbury? I am not familiar with the geography of that region.

Doctor MELVIN. I do not know where Tilbury is. I rather think it is, though.

The CHAIRMAN. Tilbury is 20 miles down the river.

Doctor MELVIN. Well, that is farther down the river than Deptford, I think.

Mr. ZAPPONE. Mr. Chairman, his traveling expenses seem to vary. I notice that in the report of 1905 his traveling expenses are \$100.35, and his station and field expenses, \$83.63.

Mr. SAMUEL. What strikes me as so peculiar is the great difference in salary as an inspector. As I understand it, the inspector of Liverpool gets \$2,500, and Doctor Wray gets \$4,562.50, which is a larger salary than the chief of the Bureau gets.

Mr. ZAPPONE. I might add in that connection that under these lump-fund appropriations the Secretary of Agriculture has authority to make an agreement with a man when he first enters the service to pay him so much for compensation as salary and so much for incidental expenses at places where it is known that there will be a great many unusual incidental expenses. Where those expenses are defined, it is sometimes so expressed in the appointment paper; as so much for horse hire, or something of that character. Now, in this particular case, while I do not believe that any additional expenses were ever enumerated in his original appointment paper—from my recollection of his accounts which I have handled, they have been separate accounts without any reference to any other items—it may have been implied, or there may have been a condition at that time as to the amount of compensation fixed per diem for his services.

The CHAIRMAN. What are his expenses over there that are so peculiar? I don't quite understand.

Mr. ZAPPONE. Doctor Melvin can explain that.

The CHAIRMAN. As to his board, Doctor Melvin here pays board in Washington, I imagine, or else furnishes his house and lives in it with his family, which I hope he does do?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And if Doctor Wray has a family, I suppose he keeps house there, just as Doctor Melvin keeps house here. Is he a man of family?

Doctor MELVIN. Yes, sir; he keeps house.

The CHAIRMAN. Yes. Well, you keep house here in Washington?

Doctor MELVIN. Yes.

The CHAIRMAN. And you have a salary of what?

(Witness: Melvin.)

Doctor MELVIN. Four thousand five hundred dollars.

The CHAIRMAN. That is in full for your services; you do not get anything for your subsistence; and in case you travel outside of Washington you are reimbursed, are you not?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Now, in what way is Doctor Wray differentiated from you, except that he gets \$12.50 a day?

Doctor MELVIN. Well, the social life is very much different; the social surroundings under which he works are very much different from mine in this city.

The CHAIRMAN. What do I understand by that? Is it necessary for him to entertain?

Doctor MELVIN. To a considerable extent; yes, sir; and he does that out of his salary.

The CHAIRMAN. Very true; but is not that a personal matter, so far as he is concerned, involving a question of taste and personal pleasure?

Doctor MELVIN. To some extent; yes; but it is largely in the interests of the Department. It has enabled him in many cases to obtain information which otherwise could not have been gotten.

Mr. SAMUEL. Judging from the action of the Senate the other day, they do not encourage increased salaries for social purposes.

The CHAIRMAN. Well, is there really a substantial advantage obtained by the Government, in connection with the duties of his office and the acquisition of information, that is subserved by the social features involved in entertaining? Of course we do not know anything about it; but in what way is that done? Where do you get the concrete results? I had supposed that his investigations were purely on scientific lines.

Doctor MELVIN. I think that the English life is more prone to entertainment of that sort than our own here, and for that reason, to be thought well of by those with whom he comes in contact, more or less entertainment is almost necessary.

The CHAIRMAN. Well, if he accepts invitations, of course he must in return expect to entertain.

Doctor MELVIN. And in that connection it would be impossible for him to refuse entertainment without causing these people to feel harshly toward him.

Mr. SAMUEL. Did you not have to do the same thing at Liverpool?

Doctor MELVIN. Not to as great an extent; to some extent, yes.

Mr. SAMUEL. Why would there be such a difference in the social features?

Doctor MELVIN. London is the official headquarters of the work. Their main offices are there. He was the one in charge of the work and considered it his duty to represent the Bureau to the best advantage. At that time I was in a subordinate position and did not feel the same as he did.

Mr. SAMUEL. I would imagine that you would have to do the same proportion of entertaining at Liverpool that he would have to do in London.

Doctor MELVIN. No; it was generally known that he was the main representative of the Department. He was looked to as the head.

(Witness: Melvin, Zappone.)

The CHAIRMAN. Then are we to understand that his compensation is increased in consideration of the fact that his social position is such that it makes it necessary for him to go to more or less expense in the way of entertaining?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Is this Mr. S. E. Bennett the Liverpool man?

Doctor MELVIN. No, sir; he is in charge at our station in Chicago.

The CHAIRMAN. What is the name of your Liverpool man?

Doctor MELVIN. Doctor Geddes.

The CHAIRMAN. T. A. Geddes?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. He is down here at \$2,500 and \$2,000; what does that mean?

Doctor MELVIN. That was an increase of \$500 during the year.

The CHAIRMAN. An increase of \$500 in salary during the year?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Why was that increase made?

Doctor MELVIN. In order to compensate him for the services rendered and—

Mr. ZAPPONE. His name is on page 64, at the bottom of the page.

Doctor MELVIN. We had, immediately prior to his being stationed at Liverpool, an inspector stationed there, and at that time Doctor Geddes's duties were confined solely to the testing of these exported animals—that is, animals exported from England to the United States—and we concluded that, as the shipments had decreased considerably, Doctor Geddes would be able to do that work in connection with the work at Liverpool; so we recalled the other inspector who had been stationed at Liverpool.

The CHAIRMAN. How much was the other inspector getting?

Doctor MELVIN. I think he was receiving \$1,800.

The CHAIRMAN. When was that?

Doctor MELVIN. That was in the previous year, I think.

The CHAIRMAN. 1905?

Doctor MELVIN. Yes.

Mr. ZAPPONE. What is his name, Doctor?

Doctor MELVIN. Doctor Johnson.

The CHAIRMAN. You mean the calendar year?

Mr. ZAPPONE. No, sir; the fiscal year.

The CHAIRMAN. Yes. That would be, perhaps, the fiscal year ending June 30, 1905; is that right, Doctor?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Is Doctor Geddes now doing the same work that you did when you were at Liverpool?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. How much were you getting when you were in Liverpool?

Doctor MELVIN. Two thousand dollars per annum.

The CHAIRMAN. How long ago was that?

Doctor MELVIN. That was between 1890 and 1892.

Mr. SAMUEL. Why is there a difference in the salary, he receiving \$1,800, while you received \$2,000? Why did he not receive \$2,000?

Doctor MELVIN. Well, he desired to go there at even a less compensation. Possibly he may have been getting \$1,600.

(Witnesses: Zappone, Melvin.)

MR. ZAPPONE. No; Dr. James Johnson received \$1,800 in the fiscal year 1905.

Doctor MELVIN. Yes? Well, that is right, then.

The CHAIRMAN. Now, if you were discharging the same duties and producing the same results for \$2,000 a year, why should the salary of Doctor Geddes be \$2,500 for the same work?

Doctor MELVIN. His work requires him to travel over a great deal more territory than I did.

The CHAIRMAN. Well, he gets pay for traveling?

Doctor MELVIN. Yes; but there is considerable expense that he is necessarily subjected to that can not be covered ordinarily. I myself may go out on a trip of two or three weeks' duration here, and no matter how closely I keep my vouchers, etc., I invariably come back with more money out of my pocket than I have vouchers to show for.

The CHAIRMAN. Yes; but you are entitled to be reimbursed for your traveling and subsistence expenses when you are out on a trip, are you not?

Doctor MELVIN. Well, one's personal expenses necessarily increase very greatly while traveling. Our own inspectors will decline travel duty on that account. They prefer to stay at a permanent station rather than travel, even where their board is paid while they are traveling.

The CHAIRMAN. Well, if the inspector's traveling expenses and subsistence expenses are paid while he is on a trip what other personal expenses has he that ought to be paid?

Doctor MELVIN. In the way of small entertainment. It is quite customary, I believe, with business firms to allow quite a considerable amount, according to the nature of the business, for that purpose:

The CHAIRMAN. Do you mean that traveling men are expected to entertain their customers by taking them to the theater and places of entertainment?

Doctor MELVIN. Some business firms no doubt go to a very great extreme in that respect.

The CHAIRMAN. What occasion does a Government inspector have to do that?

Doctor MELVIN. Well, he does not and would not go to such an extent as perhaps your question indicated.

The CHAIRMAN. Well, what are the personal expenses that a man necessarily incurs when he is on a trip, outside of his traveling expenses and his subsistence expenses, that promote the interests of the Government? Of course, if a man on a trip sees fit to go to places of entertainment, that is a personal matter with him.

Doctor MELVIN. Certainly.

The CHAIRMAN. What are the personal expenses?

Doctor MELVIN. But even then there is an inclination to engage in expense of that sort that there would not be if they were at their own homes.

The CHAIRMAN. I know; but is that a legitimate item to be taken into account in fixing a man's compensation, that when he is traveling he is rather more inclined to go to places of entertainment, and therefore it costs him something; hence the Government should pay him?

(Witness: Melvin.)

Doctor MELVIN. Not quite so strong as you put it; but I think to some extent. [Laughter.]

The CHAIRMAN. Well, I do not mean to answer it for you, Doctor, but that is the way it impresses me. Of course you are to state these matters in your own way. But do you really think that is a legitimate feature that is properly involved in fixing the compensation of a Government officer?

Doctor MELVIN. I think that the expense to which one is subjected should to some extent govern his compensation when subsistence is not allowed. I think that one who lives in a city, where the living expenditures are 20 or 30 per cent more than they are in the smaller country places, ought to have his compensation increased accordingly.

The CHAIRMAN. Yes; but that does not relate to this question—this question involved in the element of travel, and there being elements of expense incident to travel that are not included in the traveling and subsistence expenses. It was because of that fact, as I understand it, that the salary of Doctor Geddes was increased. He has a certain salary. His traveling expenses, including his fare and his subsistence, are paid whenever he does travel. But, as I understood you, when he travels there are certain expenses in addition to that which he naturally is subjected to, or naturally incurs, and that fact ought to be considered in fixing his compensation, because the fact of traveling places him in a position where he is more likely to incur expenses of that character. Do I get that correctly?

Doctor MELVIN. To some extent; yes, sir; and then on account of his having assumed duties which we had an additional man for.

The CHAIRMAN. But I understand that now he does not do any more than you did when you were there.

Doctor MELVIN. Why, he does that, and in addition makes tuberculin tests of animals which are intended for shipment to this country, which I did not do.

The CHAIRMAN. He is able to do that within the time?

Doctor MELVIN. Yes; he has been able to do so. Of course he is necessarily away from Liverpool at some times when cattle are landed there, and on that account does not inspect all of the cattle that are landed. But the necessity for the close supervision of the inspection does not exist to so great an extent to-day as it did several years ago when I was there, because we did have pleuro-pneumonia in this country when I first went there, and while I was there the Department succeeded in stamping it out—that is, while I was there it was stamped out in this country.

The CHAIRMAN. Well, I got the impression—I was mistaken, evidently—that you did this inspecting of cattle that were proposed to be exported to this country while you were there in Liverpool.

Doctor MELVIN. No.

The CHAIRMAN. Who did that while you were there?

Doctor MELVIN. It was not done at all at that time.

The CHAIRMAN. They had not taken up that branch of the work?

Doctor MELVIN. No, sir. At about that time this work was under the Treasury Department; or possibly we had it at that time, but tuberculin was not discovered until 1891, and the practical application of it was not introduced until two or three years later.

(Witnesses: Melvin, Zappone.)

The CHAIRMAN. That is one reason, then, why inspections of that character were not made, because at that time they had not discovered the efficacy of tests of that character?

Doctor MELVIN. Yes.

The CHAIRMAN. And the material had not been invented or discovered?

Doctor MELVIN. It had not been discovered.

Mr. SAMUEL. I understand you have no fixed salary for each station?

Doctor MELVIN. Abroad?

Mr. SAMUEL. Abroad.

Doctor MELVIN. No, sir.

The CHAIRMAN. No statutory salary?

Doctor MELVIN. No, sir.

The CHAIRMAN. We import cattle or animals from other countries than England, do we not?

Doctor MELVIN. No, sir.

The CHAIRMAN. Well, we import a great many horses from France.

Doctor MELVIN. I thought you said cattle.

The CHAIRMAN. Well, animals.

Doctor MELVIN. We do import a great many horses from France and Belgium, and some from Germany and other countries of Europe, and Great Britain too.

The CHAIRMAN. But those are not inspected that are imported from countries other than Great Britain?

Doctor MELVIN. They are inspected at the port of landing.

The CHAIRMAN. At the port of landing, but not at the port of shipment?

Doctor MELVIN. No, sir.

The CHAIRMAN. Do we import cattle from any other place except Great Britain?

Doctor MELVIN. Some from Holland and Belgium; some from Switzerland, indirectly, by way of Belgium.

The CHAIRMAN. Are any of those examined prior to shipment?

Doctor MELVIN. Yes; they are all examined prior to shipment.

The CHAIRMAN. And that is by your man at Liverpool?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Is this element of indefinite expense in connection with travel made an element in fixing the salary of all of your men in the field who have occasion to travel?

Doctor MELVIN. Oh, not to any very great extent, if at all. No; I don't think so.

The CHAIRMAN. Of course it is impossible to state in any instance the percentage that is allowed for that. It is simply a matter of indefinite consideration, I suppose, or is it possible to state that?

Doctor MELVIN. Well, I do not think that we have considered that to any very great extent in travel in this country.

The CHAIRMAN. That is, the indefinite expenses a man is subjected to while traveling, for which he does not get reimbursement?

Doctor MELVIN. Yes, sir.

Mr. ZAPPONE. Mr. Chairman, these expenses consist largely of tips to waiters, tips to bell boys, and tips to elevator boys, and they

(Witnesses: Zappone, Melvin.)

may be incurred in returning hospitalities extended. Most of the hotels, particularly in this country, are conducted on what is known as the "American plan;" you pay so much a day for your board and lodging.

Now, when you are invited out by representatives of firms or individuals that you have business with in connection with the Government work (and this often happens), they of course will take you, usually, to some other hotel or to their home. To refuse the hospitality proffered under these circumstances would in many cases have a decidedly prejudicial effect, so far as the success of one's official mission is concerned. Later on you have to return that hospitality, and in so doing you take them to the hotel at which you are stopping or to some private restaurant outside. It makes no difference which place you take them, you have to pay the cost of their meal. Now, if your hotel is not such a place as you would care to entertain those people that you have met—I will not call them friends; I will call them people that are met purely on public business—you take them to one of the best restaurants outside. You pay their expenses and also your own. You get no return from the Government for your expense in that particular instance, because your expenses are going on at your hotel, which makes no reduction whatever. Now, those are the two principal items of increased expense. I won't go into any of the details, but that is it in a general way.

The CHAIRMAN. What occasion has an inspector to entertain in the manner described by Mr. Zappone in connection with the effective discharge of his duties to the Government? What occasion does an inspector, an employee of your Bureau, have to do entertaining in this manner in connection with the efficient discharge of his duties under your Department?

Doctor MELVIN. Well, it is in order to obtain information, which oftentimes is not published at all, from those who know.

The CHAIRMAN. Take the question of inspecting meat. I would like to have it explained how it is that this entertainment is necessary in order to produce an efficient inspection of meat.

Doctor MELVIN. I do not think we have made any—or very little, if any—provision for increased compensation for meat inspectors on that account.

The CHAIRMAN. Well, any of your men. Take the inspection of pork for export, or animals for export, or inspection of imported animals for the discovery of any of these diseases. I would like to know where this entertainment proposition comes in, as a matter of rendering your service more efficient.

Doctor MELVIN. I do not think it exists in this country to any extent. Those two inspectors whom we have had under discussion are about the only ones that we have considered in the Bureau in this connection.

The CHAIRMAN. Well, from your understanding, it does not apply to your employees in this country?

Doctor MELVIN. Not to a very great extent. They have to get that out of their own salaries, and they often complain that their salary is not sufficient to cover entertainment of this sort. But I do not think that we have given them in this country additional compensation on that account.

(Witnesses: Melvin, Zappone.)

The CHAIRMAN. Of course, if the Government gets value from that, the Government ought to pay for it. If it does not get any value from it, these complaints are unfounded. What has been the practice of your Department in that respect?

Doctor MELVIN. I can not call to mind anyone in this country who has had his salary increased directly on that score.

The CHAIRMAN. Or indirectly?

Doctor MELVIN. Well, or indirectly.

The CHAIRMAN. Well then, could you properly say that complaints of that character are not considered by your Bureau in fixing compensation?

Doctor MELVIN. In this country; yes, sir. The Government does get the benefit of that condition just the same, though; there is no doubt about that.

The CHAIRMAN. You mean in this country?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Well, how do they get it?

Doctor MELVIN. Through small personal expenditures which are paid by the traveler, and for which no allowance is made by the Government. These expenditures are almost unavoidable in performing ordinary travel.

The CHAIRMAN. Does your Department recognize tips to railroad porters and waiters in hotels as legitimate parts of traveling and subsistence expenses?

Doctor MELVIN. To railroad porters, but not to hotel waiters.

Mr. SAMUEL. Doctor, in your arrangement of the salary of Mr. Geddes, should not those figures be transposed?

Doctor MELVIN. What page is that?

Mr. SAMUEL. Page 64.

Mr. ZAPPONE. At the bottom of that page.

Mr. SAMUEL. As it appears here it would indicate a demotion.

Doctor MELVIN. I think you are right.

Mr. ZAPPONE. That is the way I take it, Doctor Melvin. I think in his case it is a demotion instead of a promotion, because—

Doctor MELVIN. No; Doctor Geddes received a promotion from \$2,000 to \$2,500.

Mr. ZAPPONE. Then it is a typographical error?

The CHAIRMAN. Those figures should be transposed?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. How many classes of employees or agents has the Department in its work outside of Washington?

Doctor MELVIN. That is, this Bureau?

The CHAIRMAN. Yes; your Bureau. First, I suppose they are divided into classes, are they not?

Doctor MELVIN. Yes; the lowest class, except a few laborers who are, I believe, under a sort of classification, is that of taggers. They receive a compensation of \$720.

The CHAIRMAN. What do the taggers do?

Doctor MELVIN. Their duties are rather varied. At the time that designation was made they were employed in affixing tags to inspected meats by means of a wire and a lead seal. This method of marking inspected meat is now accomplished with the aid of a transferable mark, an indelible-ink mark, from a small label.

(Witness: Melvin.)

The CHAIRMAN. Does that eliminate the necessity of the tag?

Doctor MELVIN. The tag and the lead and wire seal; yes, sir.

The CHAIRMAN. How is the present marking affixed?

Doctor MELVIN. It is by a small label which is composed of gelatin on tarlatan cloth and printed in reverse type, in indelible ink. This is fastened to the meat while it is still warm and slightly wet, and makes a transfer mark on the meat.

The CHAIRMAN. So that the mark is on the meat itself?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Or does the label remain attached to the meat by virtue of the adhesive qualities of the material?

Doctor MELVIN. Well, it may remain or it may fall off.

The CHAIRMAN. If it falls off, it leaves the mark on the meat?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. The same thing would be accomplished if you stamped it on?

Doctor MELVIN. The idea is that the heat and moisture will dissolve the gelatin so that the cloth can fall off, leaving the mark on the meat. Then they also supervise the placing of stamps—paper stamps—upon packages and boxes of inspected meats. They have been assigned in some instances to field work in supervising the dipping of sheep and cattle for the eradication of scab.

The CHAIRMAN. Do these labels go on each carcass?

Doctor MELVIN. Each portion of the carcass as it is finally prepared for transportation. There are a number of portions of the dressed carcasses which are marked, generally 14. They range from 14 to 16; that is left somewhat optional with the establishment. There are from 14 to 16 which go on each carcass, and there are certain cuts designated—

The CHAIRMAN. You mean 14 to 16 labels?

Doctor MELVIN. Yes, sir; and there are certain cuts of meat in the carcass to which these are applied, so that when it is subsequently subdivided, there will be one of these marks on each of the principal cuts; that has reference to a carcass of beef. On calves, hogs, and sheep there are not that many.

The CHAIRMAN. In the case of carcasses of beef, are these labels affixed prior to the cutting up of the carcass?

Doctor MELVIN. Yes, sir; while it is yet warm; before it is thoroughly dried.

The CHAIRMAN. And those labels are put on by an employee of the Government?

Doctor MELVIN. They were; they are not now. We require the proprietors of the establishment to employ the labor to put these on. But in that event we have to supervise the affixing of them, to see that only sufficient labels are used; that they are properly affixed, and that any unused labels are collected at the end of the day.

The CHAIRMAN. When you say "properly affixed," do you mean that somebody representing the Department has to inspect each carcass?

Doctor MELVIN. Not each and every one; but in a general way they would see whether the man who is assigned to this duty by the establishment is competent, and whether he affixes them properly.

The CHAIRMAN. That is, they inspect typical carcasses?

(Witness: Melvin.)

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Is each carcass thus labeled physically inspected by some representative of the Department prior to labeling?

Doctor MELVIN. Yes, sir; they are inspected both before they are slaughtered and at the time of slaughter.

The CHAIRMAN. Each individual carcass?

Doctor MELVIN. Each and every one; yes, sir.

The CHAIRMAN. While we are on that perhaps it would be well for you to explain what that process is, how it is done, and about how long it takes.

Doctor MELVIN. The process varies somewhat, according to the character of the slaughtering establishment. If it is one of the large ones, it will be about as follows:

These animals, when they are bought by the packers in the stock yards, are subject to an ante-mortem examination. In case there is any question as to their healthfulness a metal tag is affixed to the animal's ear by a wire, an ordinary hog ring, with a serial number, and marked "Suspect." The animals that are thus marked are required to be separately slaughtered, so that they can receive careful veterinary inspection at the time of slaughter.

The CHAIRMAN. Let us take one of the largest slaughtering establishments. Which is one of the largest?

Doctor MELVIN. Armour's, or Swift's, or Morris's.

The CHAIRMAN. We will try Armour's, then. How many inspectors do you have at Armour's?

Doctor MELVIN. On the slaughter bed? This ante-mortem inspection is in the stock yards.

The CHAIRMAN. Yes; well, now, how many inspectors do you have now doing the ante-mortem inspection?

Doctor MELVIN. This stock yards is not a part of Armour's establishment. It belongs to the Union Stock Yards and Transit Company, of Chicago. After these cattle are purchased by Armour, this inspection is made.

The CHAIRMAN. When is the ante-mortem inspection made; at the time of the purchase by the individual packers?

Doctor MELVIN. Yes, sir; immediately after the purchase. We do not seem to be able to assume jurisdiction until after these animals have been purchased for slaughter in an establishment where we have inspection.

The CHAIRMAN. Yes. Well, now, how many inspectors have you at those stock yards who do this ante-mortem work?

Doctor MELVIN. We have in the stock yards at Chicago about 20 or 25 men.

The CHAIRMAN. And how many individual cattle go through those yards every day?

Doctor MELVIN. They vary from 3,000 or 4,000 to 20,000. This includes inspection also of sheep, hogs, and calves.

The CHAIRMAN. This 20,000?

Doctor MELVIN. No; the number of inspectors that I mentioned.

The CHAIRMAN. The sheep and hogs are in addition to the 20,000?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. I am taking the maximum now.

(Witness: Melvin.)

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Well, in case of 20,000 cattle going through the stock yards in a day, how many hours a day do these inspectors work?

Doctor MELVIN. They usually commence very early in the morning. They commence weighing at 8 o'clock and the scales close at 3 in the afternoon. Of course you understand all these 20,000 cattle that I spoke of would not be purchased by these packers. A part of those might be reshipped to other cities.

The CHAIRMAN. Would they have the same ante-mortem examination?

Doctor MELVIN. No, sir; not as for meat purposes. We would examine them to determine whether there was any contagious disease existing in the yards or not.

The CHAIRMAN. But not as to whether they were proper food products?

Doctor MELVIN. No, sir.

The CHAIRMAN. Well, how many cattle, on the average, will go through those yards a day purchased by these various packers?

Doctor MELVIN. Armour's would kill probably in the vicinity of 1,500 or 2,000 cattle a day.

The CHAIRMAN. What would be the average, say, 1,500?

Doctor MELVIN. I should think so.

The CHAIRMAN. And how many would the others kill?

Doctor MELVIN. About the same proportion; probably some a little more and some less. And then there are some that only kill a few, maybe 15 or 20 head.

The CHAIRMAN. How many are there that kill, say, on the average, 1,500 apiece?

Doctor MELVIN. I am afraid my figures would be laughed at, perhaps, by some of them. I can not give them very closely.

The CHAIRMAN. Well, approximately?

Doctor MELVIN. Those large slaughterers in Chicago who kill large numbers of cattle would be Armour, Swift, Morris, and Schwarzschild & Sulzberger; those are the largest ones. There are quite a number of smaller ones.

The CHAIRMAN. Those four would kill an aggregate of 6,000 cattle a day, and would the small ones come up to another thousand?

Doctor MELVIN. All together?

The CHAIRMAN. Yes. I just want to get a general idea of the amount.

Doctor MELVIN. Yes; I think about that number.

The CHAIRMAN. Then you would have about 7,000 cattle?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Now, there are 20 inspectors. That would give about 350 cattle to each inspector for seven hours' work.

Doctor MELVIN. I expect there are more inspectors than that. I think there are about 30 inspectors.

The CHAIRMAN. Well, 30; that would indicate 250 cattle for each inspector for seven hours' work.

Doctor MELVIN. Well, in addition to that there would be the inspection of hogs and sheep.

The CHAIRMAN. That is what I am going to get at. There would be approximately 250 cattle for seven hours' work; that would be

(Witness: Melvin.)

something like 35 cattle an hour. Now, in addition to that you have the sheep and hogs?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And, on the average, how many?

Doctor MELVIN. Oh, there would be fifteen or twenty thousand sheep and probably thirty-five or forty thousand hogs. Those are typical days. There are many days when there are less than that.

The CHAIRMAN. Well, there is, say, 50,000 hogs and sheep and 7,000 cattle for 30 men in seven hours.

Doctor MELVIN. The services of probably five or six of those 30 men would be taken up in examining for contagious diseases.

The CHAIRMAN. Well, it seems to me that is a tremendous amount of work for each man to efficiently and effectively perform. Now give me an idea of just exactly what they do.

Doctor MELVIN. They become very expert in the matter.

The CHAIRMAN. Explain how they do their work, so that we can see how they are able to accomplish the result.

Doctor MELVIN. As it is being done at present, these cattle are bought by the various buyers for the different establishments, and are driven in lots to these scales, where they are weighed. We have a man, sometimes two, stationed at the side of the scales where the cattle pass off, and as they come off the scales they go past him singly, so that he can observe each one as it passes by him. Frequently they will stop them and turn them around so that he can have another look; or he will head them off himself and turn them around so that he can get an additional look, if he desires to.

The CHAIRMAN. Are the diseases that would render the cattle unfit for food sufficiently obvious, so that that kind of an inspection would disclose the existence of the disease?

Doctor MELVIN. Well, in many diseases. In the case of actinomycosis, which is a swelling usually on the jaws of the cattle, it is quite readily observed; also, advanced cases of pregnancy, and extreme emaciation, which might render the meat unfit for food. Sometimes, too, in Texas fever the disease would be advanced so that it could be determined—that is, the animal will be observed as not being in perfect health, and it is selected out and a closer examination is afterwards made. Frequently the same condition will obtain in cholera in hogs. The inspector will merely observe that the hogs are not in usual health, and then they are segregated and a more careful examination made.

The CHAIRMAN. Would a tuberculous condition on the part of the cattle be ascertainable by that kind of an examination?

Doctor MELVIN. Not very frequently, but occasionally. Of course it must be an external manifestation; and if there is an enlargement of the glands in the neck and throat, then sometimes tuberculosis can be detected.

The CHAIRMAN. Is the enlarged glands a diagnostic symptom?

Doctor MELVIN. Yes, sir; but it is not always present in all cases.

The CHAIRMAN. Well, that is what I meant by a diagnostic symptom—one of the symptoms that are always present.

Doctor MELVIN. It is not always present; no, sir.

The CHAIRMAN. It is characteristic, that is; I don't know that I use the language with technical accuracy; it is characteristic, but

(Witness: Melvin.)

not necessarily diagnostic—my understanding of the term diagnostic being a symptom that is always present and always indicates the existence of the disease. I don't know that I use the right word—

Mr. SAMUEL. Yes.

Doctor MELVIN. There are many symptoms of tuberculosis which are considered diagnostic, but they are not always present.

Mr. SAMUEL. If it is present, you are satisfied that the animal has that disease?

Doctor MELVIN. Yes. The gathering together of all these different conditions renders the diagnosis possible.

Mr. SAMUEL. Its absence would not show that the animal did or did not have tuberculosis?

Doctor MELVIN. No, sir.

The CHAIRMAN. Might you have tuberculosis in the animal without any external indication?

Doctor MELVIN. Very frequently. In most of the cases; yes.

The CHAIRMAN. That would be so in most cases?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. So that an examination of that character would not disclose the existence of that condition?

Doctor MELVIN. No, sir. In the case of calves, the principal reason for condemnation is immaturity; and that is almost invariably better determined while the animal is alive than after it is dead.

The CHAIRMAN. Are the diseases that swine are affected with easily ascertainable by external indications?

Doctor MELVIN. Many of them.

The CHAIRMAN. I mean the diseases that would unfit them for food?

Doctor MELVIN. Oftentimes cholera is manifested while the animal is alive. There are varieties of tumors with which they become afflicted that render them suspicious, and they are tagged for subsequent post-mortem examination—a more careful post-mortem examination. Almost any condition that might be considered suspicious would render the animal subject to tagging, so that a special and careful examination can be given it at the time of slaughter; that is, a more careful examination than would ordinarily be given those that are not suspected of disease.

The CHAIRMAN. Such an inspection as you have described requires the constant attendance, I take it, of your whole force engaged in the ante-mortem examination or inspection?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And under those circumstances it necessarily has to be pretty rapid and more or less hurried in order to get through with that large number of animals?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Well, in practice is it demonstrated that that sort of examination practically eliminates the diseased cattle?

Doctor MELVIN. Oh, no. It is only auxiliary to the following post-mortem examination, and by itself would not nearly be a complete examination. It is only an aid to the subsequent post-mortem examination.

The CHAIRMAN. Now, explain how the post-mortem examinations are conducted.

(Witness: Melvin.)

Doctor MELVIN. In the case of cattle the animals are slaughtered; they are knocked in the head and rolled onto the killing floor. The different parts of the floor over which they pass are termed beds, and there may be 18 or 20 beds in one killing floor. That would mean places where 18 or 20 cattle would come out on the floor at one time. Our inspector passes with the man who removes the viscera—the internal organs—from one animal to another; and as the intestines, lungs, and liver are visible, he examines them to ascertain whether they are free of disease or not.

The CHAIRMAN. How many inspectors do that work in the case of 18 or 20 cattle beds?

Doctor MELVIN. On these larger floors we usually have two veterinarians who relieve each other at intervals of two or three hours, as this constant walking back and forth is quite a severe strain and the hours are sometimes quite long; so that we find it necessary to have two men to spell each other in this work.

The CHAIRMAN. The strain is so great that the men can not do continuous efficient work?

Doctor MELVIN. Not without becoming careless.

The CHAIRMAN. How long does that process continue, of removing the viscera?

Doctor MELVIN. The slaughtering of 2,000 cattle, or such a matter, would occupy probably ten hours' work; say 150 or 200 an hour.

The CHAIRMAN. That would be about two a minute?

Doctor MELVIN. About that; yes.

The CHAIRMAN. Or a little faster than that. Now, that would give one of your inspectors a little over half a minute to examine the viscera?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. They really make an adequate examination in that length of time?

Doctor MELVIN. They can determine whether the animal is free from disease or not. In case disease is found, the viscera, with the animal, are tagged, and shunted off into a special place where they can make a more elaborate examination at a later time. This is a specially constructed place called a retaining room. It is usually the case, where there are two men, that one will be on the floor, and in the case of any of these suspected animals being removed the other makes his final or more careful examination.

The CHAIRMAN. Well, can your inspectors, by a thirty seconds' examination of the viscera, determine the question as to whether there is present disease of such a character as to render the carcass unfit for food?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. That would be disclosed by the character of the viscera?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. That is a very rapid examination.

Doctor MELVIN. They become very expert.

The CHAIRMAN. You think they can accomplish the results in that time?

Doctor MELVIN. Yes, sir.

Mr. SAMUEL. The glands are examined?

(Witness: Melvin.)

Doctor MELVIN. The glands, and the condition of the liver and spleen—all the internal organs in each case.

The CHAIRMAN. Is half a minute sufficient to look those over?

Doctor MELVIN. To determine the presence or absence of disease, it is; yes, sir.

The CHAIRMAN. How would tuberculosis be disclosed?

Doctor MELVIN. In cattle—

The CHAIRMAN. That is, by the viscera?

Doctor MELVIN. In cattle, usually the mediastinal glands of the lungs are involved, and the lungs themselves, and the liver. In more advanced cases the spleen would probably be affected or the mesenteric glands of the intestines, and various other glands.

The CHAIRMAN. What would these organs disclose—cavities?

Doctor MELVIN. No; they would probably disclose abscesses containing pus.

The CHAIRMAN. Suppuration?

Doctor MELVIN. Cheesy matter; suppurative changes that are going on. Usually with cattle there is a great deposit of calcareous matter that makes these masses gritty and of a grayish color.

The CHAIRMAN. What other diseases are there incident to cattle that render them unfit for food?

Doctor MELVIN. Well, there might be enteritis—inflammation of the intestines—there might be extensive mammitis, metritis, or inflammation and ulceration of the uterus following calving, in cows. They occasionally find Texas fever.

The CHAIRMAN. How is that indicated by the viscera?

Doctor MELVIN. There is usually a very decided yellow color of all the fat and a bloody appearance of the urine, very much enlarged spleen, and quite frequently some inflammation of the intestines. Also, of course, one of the most diagnostic symptoms is the presence of the tick on the hide—the cattle tick.

The CHAIRMAN. Well, that is independent of the viscera?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. How do you assure yourselves of the identity of the carcass? You say, if there is any indication of organic change—that is about what it comes to, I suppose?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. If there is any indication of organic change, you have the carcass reserved for further examination?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And where does it go—into some other room?

Doctor MELVIN. There is a special room provided for this purpose, called a retaining room, so that we can at any time lock these carcasses up and retain them in our possession in the establishment.

The CHAIRMAN. Now, this process is relatively very rapid; those cattle are moving through there at great speed. In what way do your inspectors assure themselves of the identity of the carcasses that they have marked for further examination, so that they can be sure that everything they have discovered is subsequently examined?

Doctor MELVIN. They attach a numbered tag to them, which we call a "retained" tag. This is attached to them with a wire and lead seal, and stays there upon the carcass until it is removed by the inspector.

(Witness: Melvin.)

The CHAIRMAN. How many men do you have engaged in that kind of inspection at that establishment?

Doctor MELVIN. Two on cattle, three on hogs, one on sheep, and one on calves.

The CHAIRMAN. And that number is sufficient to perform that inspection for that establishment?

Doctor MELVIN. All of the post-mortem inspection.

The CHAIRMAN. How is the existence of trichinosis in swine ascertained?

Doctor MELVIN. That is done by the microscopic examination of the muscle fiber.

The CHAIRMAN. That would not be disclosed by the viscera?

Doctor MELVIN. No, sir; it requires a microscopic examination to determine that. These parasites are so small that they are not distinguishable with the naked eye.

Mr. SAMUEL. Are there any symptoms of trichinosis in the live animal?

Doctor MELVIN. No, sir.

The CHAIRMAN. Then how do you get at the existence of trichinosis, or whether it is present or absent?

Doctor MELVIN. The inspection for that disease has only been carried on where such an examination is necessary for the exportation of pork to certain foreign countries which require this examination. It has never been conducted generally for domestic purposes.

The CHAIRMAN. Why not?

Doctor MELVIN. I think the principal reason was the tremendous cost it would involve and the small necessity for making the examination. The parasite is readily killed by cooking and by thoroughly salting. It is only where the meat is generally used in a raw or uncooked state that there is any danger from it.

The CHAIRMAN. Is it generally present, or is it only infrequently found?

Doctor MELVIN. It is found in 1.27 per cent of those that we examine.

The CHAIRMAN. It is relatively a very small factor, then?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Why is the examination made in the case of pork for export—on account of the requirement of the foreign country?

Doctor MELVIN. Yes, sir; in some foreign countries this requirement has been discontinued entirely.

The CHAIRMAN. Are the diseases that sheep are subject to indicated by the character of the viscera, so as to be obvious on a hasty examination?

Doctor MELVIN. Well, in most cases sheep are quite healthy. Only a very small proportion of sheep are found diseased at all. Most of the condemnations that we have to make of sheep are on account of emaciation—starvation. Then, a disease called caseous lymphadenitis affects them to some extent, but not a very large proportion.

The CHAIRMAN. Now, is your reason for rejecting an emaciated animal, either cattle or sheep, the fact that emaciation indicates disease of some sort and therefore an unhealthy condition of the flesh?

Doctor MELVIN. Not necessarily. The principal ground for condemnation would be on account of the meat lacking in nutritive value.

(Witness: Melvin.)

The CHAIRMAN. Then, it is not necessarily unfit for food?

Doctor MELVIN. No, sir. We differentiate between cattle that are in good health, but which are thin, and those which are thin and not in good health, usually by a further examination after the carcass is hung for a while. In the one case the meat would be dry and firm and of a wholesome color, while in the other it would be flabby and wet and show that the animal was anæmic from lack of vitality.

The CHAIRMAN. You weed out all the emaciated animals to which your attention is directed by the ante-mortem examination, do you not?

Doctor MELVIN. Yes; but they are killed, of course, subject to the post-mortem.

The CHAIRMAN. A subsequent examination?

Doctor MELVIN. Yes, sir; except in cases where it is desired to remove those animals for feeding or breeding. Sometimes there will be a lot of animals that will be unfit for slaughter, but will be young and vigorous, and buyers will wish to return them to the country for feeding.

The CHAIRMAN. But where they elect to go on and slaughter, each of those carcasses is hung up for the post-mortem developments?

Doctor MELVIN. Yes, sir. We would have to have over \$4,000,000 additional to make this trichina inspection.

The CHAIRMAN. The inspection for trichinosis?

Doctor MELVIN. Yes.

The CHAIRMAN. Have any complaints reached the Department of the existence of trichinosis in recent years?

Doctor MELVIN. But very few cases are reported to us. Occasionally we have received information of cases where people contract the disease through eating raw pork, uncooked pork. Usually such cases are confined to foreigners who carry their custom of eating raw pork to this country.

The CHAIRMAN. In what portions of the animal are the trichinæ found—in the fatty or lean portions, or both?

Doctor MELVIN. Entirely in the lean portions.

The CHAIRMAN. But ordinary cooking destroys them?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And salting or pickling or smoking does the same?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. So that you never would find it, for instance, in ham?

Doctor MELVIN. Not alive. You can find the parasite there, but the process of curing would have killed it.

The CHAIRMAN. Yes; that is what I meant. You never would find them in a ham in a condition that would be prejudicial to health?

Doctor MELVIN. No, sir.

The CHAIRMAN. So that if ham is eaten without cooking it can be done with impunity, so far as that disease is concerned?

Doctor MELVIN. Well-cured ham; yes.

The CHAIRMAN. Now, you have how many grades of inspectors; running all the way from \$1,000, is it?

Doctor MELVIN. They commence at a salary of \$1,200.

(Witness: Melvin.)

The CHAIRMAN. They commence at \$1,200, and go on with increases of \$200 each, up to \$1,800?

Doctor MELVIN. Yes; we commenced a system of that sort this year. Previously they went from \$1,200 to \$1,400, and from \$1,400 to \$1,500; then to \$1,600, and from \$1,600 to \$1,800.

The CHAIRMAN. You say previous to this year, in the manner you have just described?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And now how do they run?

Doctor MELVIN. We have eliminated the \$1,500 grade; they go from \$1,400 to \$1,600.

The CHAIRMAN. And then from \$1,600 to \$1,800?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Why was that \$1,500 grade eliminated?

Doctor MELVIN. We had to do it in order to retain men who were proficient, and to obtain sufficient other men, on account of the increased work. The work was not sufficiently attractive to induce many veterinarians, or enough veterinarians, to engage in it.

The CHAIRMAN. Now, men begin in your inspector grade at \$1,200, and work up until they finally reach \$1,800?

Doctor MELVIN. Yes, sir; and in the case of extraordinary duties, such as being in charge of a station and having additional responsibility, their pay is increased.

The CHAIRMAN. In that case they have executive duties in addition to their professional duties?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Well, what is the difference between the duties performed now by the men in these various classes, \$1,200, \$1,400, \$1,600, and \$1,800? Is it a question of additional duties, or is it a question of length of service that gives rise to the increase of salary?

Doctor MELVIN. Both, to some extent, the length of service probably predominating.

The CHAIRMAN. That is, the length of service is a controlling factor?

Doctor MELVIN. Yes, sir. We consider it better for them to enter the service at a comparatively low salary and have the salary increased according to length of service, rather than to have them come in at a fixed salary and remain at such fixed salary.

The CHAIRMAN. Now, as briefly as you can, please state what, if anything, is done by your \$1,400 men that is not done by your \$1,200 men, and so on until you reach your \$1,800 men. First state, in a general way, what your \$1,200 men do.

Doctor MELVIN. They all do practically the same kind of work. Some may do ante-mortem inspection and others post-mortem, but they may be transferred and changed around from one class of work to another.

The CHAIRMAN. That is, taking two men of the same class at the same time, one of them may perform the ante-mortem and one the post-mortem examination?

Doctor MELVIN. Yes, sir. Take, for instance, a \$1,200 man; men who are new in the service would not be intrusted with these final post-mortem examinations which determine whether the animal

(Witness: Melvin.)

should be destroyed or passed for food. That would be left principally to the older and more experienced inspectors. There would be that difference between the high and the low priced men.

The CHAIRMAN. Might this be true; you have described two men as examining the viscera, where there were 18 or 20 cattle going through at a time; might you have a \$1,400 man and a \$1,600 man working along side by side, doing the same work?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Might you have a \$1,200 man and a \$1,600 man working also side by side?

Doctor MELVIN. Not so frequently; but it might be true; yes, sir.

The CHAIRMAN. So that there is not any substantial distinction in the kind and quality of work done by the men of these various grades?

Doctor MELVIN. No; it is governed very largely by the length of service.

The CHAIRMAN. Do you have any difficulty in getting men to enter your \$1,200 grade?

Doctor MELVIN. Yes, sir; a great deal. We have quite a large number of veterinarians employed under temporary appointment at present, not being able to get them under the civil service.

The CHAIRMAN. That grade is under the civil service?

Doctor MELVIN. All of them are; yes, sir.

The CHAIRMAN. There are no applicants waiting who have taken the civil-service examination; your service has exhausted them all?

Doctor MELVIN. No; there are some waiting, but they are not in sufficient numbers to provide for our work.

The CHAIRMAN. Well, why do you not exhaust the men that are waiting, then?

Doctor MELVIN. Oh, you mean waiting now on the civil-service eligible list?

The CHAIRMAN. Yes.

Doctor MELVIN. That is exhausted.

Mr. SAMUEL. Most of these men are graduates of veterinary colleges?

Doctor MELVIN. Yes, sir. We require applicants to be graduates of colleges having a three-year course, and in addition they must pass a technical civil-service examination.

The CHAIRMAN. Do your stock examiners have to pass a civil-service examination?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. They have salaries of about \$900. Are they also professional men?

Doctor MELVIN. No, sir.

The CHAIRMAN. What do they do?

Doctor MELVIN. It is usual to promote the stock examiners from the position of tagger after civil-service examination.

The CHAIRMAN. What do these stock examiners do?

Doctor MELVIN. They assist principally in this ante-mortem stock-yard inspection. There would be two or three or more of these stock examiners making ante-mortem inspections in the stock yards, and the cattle which they would retain would be again overseen by a veterinarian, who would determine whether they should be released or whether these retained tags should be kept on them. They some-

(Witness: Melvin.)

times assist in the post-mortem work, principally in the inspection of hogs. There we have one who examines the glands of the throat—that is, the neck is cut across to determine whether there is any diseased condition present. This work is usually performed by non-professional men. Below him is another inspector, usually a veterinarian, who is stationed where the viscera are removed by the butcher who removes the entrails, and a third would be in this retaining room, where those that are retained by either one of these two on the killing floor are passed to him.

The CHAIRMAN. Now, where you have these 30 inspectors for the ante-mortem inspection you have in addition stock examiners?

Doctor MELVIN. No; they are in that list—they are included in that.

The CHAIRMAN. They are included in the 30?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Is there any difficulty in the way of these examiners acquiring in a very short time everything that is necessary in order to determine from the appearance of stock the facts that are ascertainable in the ante-mortem examination?

Doctor MELVIN. Well, they become quite expert in a short time—in fact, most of them are quite well qualified before they become stock examiners. Frequently taggers will do as much of this work as they can. Those who are ambitious will ask to be assigned to work of that character in order that they may familiarize themselves with it and put themselves in line for a higher grade.

The CHAIRMAN. Is it usual for men to move from the grade of stock examiner at \$900 to that of inspector at \$1,200?

Doctor MELVIN. Quite a number have, through attending veterinary colleges which give a night course. At some cities there are veterinary colleges that have night courses, and these men have been able to avail themselves of the privilege of attending them.

The CHAIRMAN. You don't allow any men in the \$1,200 grade that have not taken a professional course?

Doctor MELVIN. No, sir.

The CHAIRMAN. Is the position of stock examiner and tagger also under the civil service?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Do you have any difficulty in filling your service from the eligible civil-service list on those two lines?

Doctor MELVIN. No, sir. As I explained, the stock-examiner positions are filled entirely by promotion through examination of these taggers.

The CHAIRMAN. Do you have an examination in your Department, or is there an examination held by the Civil Service Commission, of the stock examiners as a preliminary to their promotion to the position of inspector at \$1,200?

Doctor MELVIN. Previous to this year there was an auxiliary board within our Department that held these examinations—an auxiliary board of the Civil Service Commission. This year we have had the examination held by the civil-service examiners located in the various cities.

The CHAIRMAN. Are there any eligibles in the stock examiners' list for promotion to the \$1,200 inspector position?

(Witness: Melvin.)

Doctor MELVIN. No, sir.

The CHAIRMAN. So that all the eligible lists from every source are exhausted?

Doctor MELVIN. Not that of taggers. Inspectors; yes, sir.

The CHAIRMAN. I meant for \$1,200 inspectors.

Doctor MELVIN. Yes, sir.

The CHAIRMAN. You have no eligible list that furnishes you material for the appointment of \$1,200 inspectors?

Doctor MELVIN. No, sir; not now.

The CHAIRMAN. How do you take care of the service when additional men are required?

Doctor MELVIN. We have to make temporary appointments of veterinarians who are willing to serve until another list can be provided. We can sometimes get men that will assist until that time. We can only make appointments outside the civil service until such time as the list is provided; then their services must cease.

The CHAIRMAN. How many have you now that are temporarily appointed?

Doctor MELVIN. I imagine that we have probably 40 or 50.

The CHAIRMAN. And what grade are they in?

Doctor MELVIN. Twelve hundred dollars.

The CHAIRMAN. Do you have any difficulty in getting men for temporary appointment?

Doctor MELVIN. At times; yes, sir.

The CHAIRMAN. Now, to what do you attribute the difficulty in getting a sufficient number of eligibles for your \$1,200 grade, and in getting all you need by temporary appointment?

Doctor MELVIN. The pay has not been sufficiently attractive. The veterinary colleges of the country have never in their history graduated so many students as they have during the past few years; but, in spite of that fact, we can not get any very large number of eligibles. One examination will usually produce from 18 to 25 eligibles; and we simply had to make the pay larger in order to induce them to enter the service.

The CHAIRMAN. The 18 to 25 men are not sufficient for your purpose?

Doctor MELVIN. No, sir. You see, we have, as I stated, from 40 to 50 temporary employees.

The CHAIRMAN. Yes.

Doctor MELVIN. Now, one examination would only fill half of that number; whereas we should have enough to completely fill that, and have an additional number to draw on as we might require.

The CHAIRMAN. Have the demands of your Department been increasing so that you require a larger force?

Doctor MELVIN. Oh, yes. This meat-inspection bill has increased the work tremendously.

The CHAIRMAN. What percentage?

Doctor MELVIN. Previous to this we had under inspection 163 abattoirs; now we have something less than 700 establishments. Of course the large increase is not of the larger character of establishments, but the smaller ones.

The CHAIRMAN. It does not represent the same number of employees per abattoir as the original number?

(Witness: Melvin.)

Doctor MELVIN. No, sir. I can give you the figures, if you desire, of those that we had on July 1 and those that we had on December 1 engaged in meat inspection.

The CHAIRMAN. I think it would be a good idea to put those right in here.

Doctor MELVIN. July 1, 1906, 764 employees; December 1, 1906, 1,965.

The CHAIRMAN. And this extra 1,200 or more were made necessary by the recent legislation?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Has your service lost anything by resignations, to any extent?

Doctor MELVIN. Yes, sir; we lose a great many veterinarians. The resignations are quite largely confined to the veterinarian class. We occasionally have resignations from the nonprofessional ranks, but not to the same extent.

The CHAIRMAN. From what classes do the resignations occur to the largest extent—from your higher or lower classes?

Doctor MELVIN. The higher classes—the veterinarians.

The CHAIRMAN. I wish you would state the number of resignations that have occurred during the last fiscal year, divided into classes.

(Answer to be furnished by Doctor Melvin.)

Statement showing number of separations from the service of the Bureau of Animal Industry by resignation during the calendar year 1906, classified by designation and salary.

Designation.	Salary.	Number.	Total.
Veterinary inspector	\$1, 800	2	.....
Do.	1, 600	3	.....
Do.	1, 500	7	.....
Do.	1, 400	5	.....
Do.	1, 200	27	44
Clerk	1, 200	2	.....
Do.	1, 000	3	.....
Do.	900	1	.....
Do.	840	1	.....
Do.	600	1	8
Meat inspector	1, 000	25	25
Live-stock agent	1, 200	1	.....
Do.	900	1	2
Expert groom	1, 000	1	1
Field stock agent	1, 000	3	3
Foremen of taggers	1, 000.00	1	1
Stock examiner	900.00	15	15
Patrol taggers	900.00	1	1
Microscopist	840.00	1	1
Tagger	840.00	2	.....
Do.	720.00	63	65
Laborer	720.00	4	.....
Do.	p. m. 60.00	1	.....
Do.	p. m. 40.00	3	.....
Do.	p. m. 30.00	2	10
Messenger boy	360.00	1	.....
Do.	p. m. 30.00	1	2
Scientific assistant in biochemistry	1, 200.00	1	1
Special agent in meat inspection	p. d. 5.00	1	1
Assistant microscopist	p. d. 2.10	1	1
Total		181	181

When upon (at 1.30 o'clock p. m.) the committee took a recess until 2 o'clock p. m.

AFTER RECESS.

DOCTOR MELVIN. I made a wrong statement this morning, unintentionally, regarding our not having any other per diem inspectors. I overlooked several that we have along the Canadian border, who inspect Canadian cattle that are imported into this country. I wish to correct that.

THE CHAIRMAN. Where do they appear in the report?

DOCTOR MELVIN. I think they are scattered through.

MR. ZAPPONE. You will find them on page 67, about halfway down the page.

THE CHAIRMAN. Inspectors, \$8 per diem and \$5 per diem?

MR. ZAPPONE. Yes, sir.

THE CHAIRMAN. What sort of duties do those inspectors discharge; are they similar to those of the men abroad?

DOCTOR MELVIN. No, sir; their work is confined entirely to the inspection of live stock imported from Canada into the United States. That includes sometimes a period of quarantine of a part of the animals, where they are not properly supported by certificates from Canadian official veterinarians.

THE CHAIRMAN. Are the meat inspections that have been so largely increased distributed pretty much all over the country, or are they largely localized where the large beef-producing concerns are located?

DOCTOR MELVIN. I think the largest proportion of increase was in the Eastern States, where there were many small slaughtering establishments, and also many establishments that cured meats, but did not slaughter. Particularly in the vicinity of New York and through Massachusetts and Connecticut there are many small places that cured, but did not slaughter; also many small slaughtering establishments.

THE CHAIRMAN. Did the new law make it necessary to have any additional inspectors in the large houses in Chicago?

DOCTOR MELVIN. No, sir; the system of post-mortem inspections is practically the same now as before the new law, except that we have provided that better facilities shall be furnished by the proprietors for making this final inspection. This is made with greater care than heretofore, and there has been some slight increase in the number of inspectors on that account.

THE CHAIRMAN. So that the additional 1,200 were mainly in the balance of the country?

DOCTOR MELVIN. Yes, sir. Those were largely meat inspectors, a class of employees that were introduced under the new law—men who had practical experience in determining the fitness of meat for food without reference to the health of the animal. These men are also required to report on the sanitary conditions of the department of the establishment where they are placed, as regards cleanliness, ventilation, etc.

THE CHAIRMAN. Did the Department inspect as to sanitation and ventilation prior to the passage of that law, wherever it was engaged in inspections?

DOCTOR MELVIN. No, sir. The law never gave us sufficient authority to require such measures.

(Witness: Melvin.)

The CHAIRMAN. Were the conditions in the large slaughterhouses such as, in the judgment of your Department, rendered additional authority in that respect necessary?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Since the law has gone into effect has the Department been able to produce any change for the better in the large packing houses in that respect?

Doctor MELVIN. Yes, sir; very materially, in the matter of ventilation, light, cleanliness of employees, cleanliness of tables upon which meats are handled, the character of the flooring, sewerage of the establishments, etc.

The CHAIRMAN. Was there any inspection of that sort prior to the passage of the law?

Doctor MELVIN. Not by the General Government. Those matters were all under the control and supervision of the municipal authorities.

The CHAIRMAN. Were complaints made to your Department of insanitary conditions and uncleanly conditions prior to the passage of the law?

Doctor MELVIN. No; I think not. Well, I will modify that. Shortly previous to the passage of the law there was very great complaint and quite a considerable agitation along that line, and the Department itself previously had made an investigation of its own to determine the general conditions obtaining in these establishments.

The CHAIRMAN. Over how long a period of time did that agitation extend, which was immediately prior to the bill; a few months, or longer?

Doctor MELVIN. About two months, I should say.

The CHAIRMAN. And prior to that time there were no complaints?

Doctor MELVIN. There had been some criticism about six months previous in one of the foreign medical journals, the Lancet, by an expert who was sent over from England to investigate the slaughterhouse conditions in this country. Some of those criticisms were well founded, and some were considered not.

The CHAIRMAN. With the exception of the criticisms of the medical journal, were there complaints from any quarter?

Doctor MELVIN. Well, there was a novel published which dealt very extensively with the conditions at the Chicago stock yards.

The CHAIRMAN. That was Sinclair's "Jungle?"

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Prior to the publication of "The Jungle," had you received complaints from any quarter?

Doctor MELVIN. I think not. I can not recall any.

The CHAIRMAN. Had the employees of the Department ever called attention to unsanitary conditions or the uncleanly character of the establishments?

Doctor MELVIN. In some instances they had; and some orders had been issued by the Department regarding sanitation, which we considered necessary, but which we also considered beyond the law. They were issued, nevertheless, in order to improve the sanitary conditions. In several instances the Department refused to commence inspection at establishments that had requested inspection, but which were in too unsanitary a condition to be acceptable in any way whatever.

The CHAIRMAN. Are the concerns engaged in slaughtering cattle complying with the provisions of the meat-inspection law?

Doctor MELVIN. Yes, sir; they are, so far as it is possible for them to comply. In some instances the changes which they are making, and which were brought about by the new law, will require a number of months, probably a year or more, to complete. In several instances it has resulted in almost the complete rebuilding of the establishments, and as this is done in a very permanent way, and the establishments are very large in size, it requires a great deal of time to do that. In the meantime they have made such changes as would be acceptable until these permanent changes are completed.

The CHAIRMAN. This \$808,275 for meat inspection is the sum that was incurred mainly before the enactment of the recent law, is it not?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. That law did not go into effect so as to affect your disbursements for the year ending June 30, 1906?

Doctor MELVIN. No, sir; the law was not approved until June 30.

The CHAIRMAN. And did it become operative immediately?

Doctor MELVIN. On July 1; yes, sir; except one provision with reference to interstate transportation, which went into effect on October 1.

The CHAIRMAN. This \$808,275 that was spent in the fiscal year 1906 was. I suppose, mainly in the great slaughtering and packing centers?

Mr. ZAPPONE. What page are you on, Mr. Chairman?

The CHAIRMAN. Page 99.

Doctor MELVIN. Yes, sir; the bulk of it was spent in those centers. May I add here that the estimated annual value of our market in civilized countries requiring Government inspection is \$25,000,000.

The CHAIRMAN. Before we go any further, are your inspectors, examiners, and taggers so arranged and distributed in connection with this work that the time of the men is continuously employed during their working hours?

Doctor MELVIN. Well, their work varies considerably.

It is controlled almost entirely, or at least to a very great extent, by the slaughtering at these establishments; that is, speaking of slaughtering establishments, some days there will be a large number of animals killed and other days a very much less number, so that on some days the actual hours of slaughtering would be three or four or five and on other days as high as from twelve to fifteen. But the average time of slaughtering is from about six to eight hours per day. Then at the places where slaughtering is not carried on the time is quite uniform day in and day out.

The CHAIRMAN. Are these extra 1,200 employees that you now have added to the Department so distributed that their time is continuously employed during the working hour?

Doctor MELVIN. Not in all instances. It is sometimes necessary for us to have one employee at an establishment whose actual hours of labor may be very short, but still those hours are distributed through the day so that it would not be possible to utilize his services at any other establishment. In some instances there are three or four establishments that are so conveniently located with respect to one another that one or two men can perform the work at all of the several places.

(Witness: Melvin.)

The CHAIRMAN. Are there not a good many small establishments where there is very much less work than will employ an inspector?

Doctor MELVIN. Well, there are necessarily some that are obliged to have inspection or forego their interstate trade, where the amount of business performed is comparatively very small; but the same necessity exists for providing inspection as at the larger places.

The CHAIRMAN. How many small places of this kind are there?

Doctor MELVIN. I would hardly know. A majority of these smaller places are located where other places are also located, and can be carried on in connection with some of the larger ones by a small force. There are some that, as I stated, require the continuous service of one employee whose actual service during the entire day would not in the aggregate amount to two or three or four hours; but the time of his employment is distributed through the day, so that it is impossible to use his services in any other respect.

For instance, they may commence shipping very early in the morning, at 3 or 4 or 5 o'clock, and one would have to be there to see that the packages were properly marked with the inspection stamp, in order that they may be received for interstate shipment. This work may drag along during the day, and go on until 5 or 6 o'clock in the evening; but his time would probably not be fully employed during all of the day.

The CHAIRMAN. How do you satisfy yourself as to the number of men that are necessary at a given place? Do you have anyone in the Bureau whose duty it is to travel over the ground and ascertain those facts?

Doctor MELVIN. Yes, sir. We have three men who are designated as traveling inspectors, and they are each assigned to different districts within the country. Their itinerary is outlined for them here, and they visit these various places and report on the work in general—the inspection, the sanitary conditions, the number of employees engaged, whether more are required, or whether more are employed than are necessary. Then, of course, our own experience to a very large extent can tell us what number would ordinarily be required.

The CHAIRMAN. That is, your experience has demonstrated that there is a general rule?

Doctor MELVIN. With slaughtering establishments of fairly good caliber there is about the same number required in each, and there is a larger proportion of employees required in some of the very small establishments than there is in the larger ones.

The CHAIRMAN. Where is your microscopic inspection of pork for export made? At the slaughtering houses?

Doctor MELVIN. No, sir. They have an office provided outside of the slaughtering establishments where this is done, except in one instance. In Milwaukee one of the packers provided a room for this force. In Chicago we have a rented building for this purpose—or a rented room, rather—and the samples taken from these various hogs are delivered to this room for examination. In South Omaha we use a portion of the post-office building for this work.

The CHAIRMAN. From what part of the hog is the sample taken, and how large is the sample?

Doctor MELVIN. The sample is comparatively small, not much larger than a hickory nut, and it is usually taken from the dia-

(Witness: Melvin.)

phragm, the tenderloin, and the shoulder; and when the tongue is reserved for export to these particular countries a portion is taken from the base of the tongue, making four samples.

The CHAIRMAN. That is done with instruments constructed for that purpose, or is it just cut out with an ordinary knife?

Doctor MELVIN. Cut out with a small knife.

The CHAIRMAN. Who does the cutting out—a representative of your Department?

Doctor MELVIN. Yes, sir; that is performed by these taggers that we have.

The CHAIRMAN. These samples are taken from the carcass before it is cut up?

Doctor MELVIN. Yes, sir; these samples are cut from the carcass and placed in a small tin box, a number is put in the box and a duplicate of this number is attached to the hog. Then these smaller boxes are transferred into one large box, containing a hundred each of these small boxes and taken to the microscopic room. As these samples are examined it is noted whether or not they are free from trichina, and in case trichina is found these hogs are removed from the others and they are permitted to render them into lard or to cook them or boil them.

The CHAIRMAN. Now, that inspection is made simply to enable the men doing the slaughtering to export that particular product to some foreign country?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. So that that is almost a special service rendered to the companies engaged in that particular business?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. A special service rendered to them?

Doctor MELVIN. It is not accorded to any others except those that are engaged in this trade.

The CHAIRMAN. Do the purchasers of pork abroad require Government inspection or simply inspection? Do you know what the fact is in that respect?

Doctor MELVIN. No; the governments require it; the foreign governments require it.

The CHAIRMAN. Require Government inspection?

Doctor MELVIN. Yes, sir. This trichina inspection, however, has been discontinued at present. In the case of Italy, since our discontinuance of this inspection they have modified their regulations so as to admit pork without the microscopic inspection.

The CHAIRMAN. Where are animals inspected for export?

Doctor MELVIN. They are inspected at the original stock centers where they are purchased for export, and then are again inspected at the seaboard at the port from which they are shipped. The principal shipping ports are Portland, Me.; Boston, New York, Philadelphia, Baltimore, Newport News, and Norfolk.

The CHAIRMAN. Are the inspections that are made of cattle for export made in the same way as the ante-mortem inspections are made for the slaughtering houses?

Doctor MELVIN. In about the same manner; yes, sir.

The CHAIRMAN. And both inspections are substantially the same, are they?

(Witness: Melvin.)

Doctor MELVIN. Well, I think that probably the export inspection is considerably closer. Many animals are refused exportation on account of the possibility of some complaint being made abroad regarding them.

The CHAIRMAN. That would be where your suspicion was excited with reference to the individual animal?

Doctor MELVIN. Yes, sir; even where it is a very slight suspicion. It has been our aim to keep the standard of export cattle so high that there can be no possible complaint.

The CHAIRMAN. So that animals exported are in a sense subjected to three inspections—one at the stock yards, or the place of original purchase, one at the place of export, and the other at the port where it is imported, London or Liverpool?

Doctor MELVIN. Yes, sir; and occasionally at an intermediate station between the original point of shipment and the port of export, like Buffalo, for instance. If they pass through Buffalo and are unloaded there, they would be subject to inspection there.

The CHAIRMAN. How many inspectors have you in Portland, for instance?

Doctor MELVIN. Previous to this new meat-inspection work we have had two; one inspector and a laborer who assists him at times in some of his duties.

The CHAIRMAN. Was there inspection enough at that port to keep these men continuously employed?

Doctor MELVIN. Not every day; no, sir.

The CHAIRMAN. What were they doing when they were not employed in inspecting?

Doctor MELVIN. Some days I presume they did nothing, and other days they would look after the cleaning of the yards, seeing the condition of the yards, possibly looking over the steamers previous to the arrival of the cattle, and various duties of that sort. It is necessary for the vessels to be inspected before the cattle are loaded, so as to see that certain requirements regarding fittings—the kind of fittings, stanchions, and stalls for the cattle—are complied with; also that the necessary amount of hay and water is provided, and that the attendants who are to accompany the stock meet certain other requirements. The inspection of vessels carrying live stock saves on animals and insurance \$1,000,000 annually.

The CHAIRMAN. Now, is your inspection of imported animals made in substantially the same way at the place of importation?

Doctor MELVIN. No, sir; that is even a more careful examination. The temperatures of these animals are taken at intervals during the time of their confinement in the quarantine station, and a great deal of care is taken to avoid any possibility of carrying infection from the stables to other parts of the quarantine station or away from the quarantine station.

The CHAIRMAN. Then, in the case of importation of animals for breeding purposes—because that is, I suppose, all the importation there is, is it not?

Doctor MELVIN. From Europe; yes, sir.

The CHAIRMAN (continuing). The inspection of each individual animal is made?

Doctor MELVIN. Yes, sir.

(Witness: Melvin.)

The CHAIRMAN. And that is very much more careful than the inspection that is made of animals for export?

Doctor MELVIN. Yes, sir. Our various import regulations prevent the otherwise almost certain introduction of diseases that would result in an annual loss of stock to the extent of at least \$2,000,000. The eradication of surra from the United States, based on the fact that this disease is usually fatal, causing death in a large percentage of horses and cattle in the infected countries, is worth \$1,000,000 annually. The eradication of Malta fever in goats and the consequent prevention of this disease in man has an estimated annual value of \$500,000.

The CHAIRMAN. That is the same kind of inspection that is made by our inspector abroad before they are shipped, is it not?

Doctor MELVIN. Well, the tuberculin test is not applied after their arrival here when it has been previously applied by our agent abroad.

The CHAIRMAN. How long has the Department been having these duplicate inspections?

Doctor MELVIN. How long since this man was stationed abroad?

The CHAIRMAN. Well, yes; how long since they have been having a station abroad?

Doctor MELVIN. Well, Doctor Geddes was assigned to that work. He has been the only one engaged in that foreign testing, and he has been there about five years.

The CHAIRMAN. What has been the character of the stock received in this country since Doctor Geddes began his work, as compared with before?

Doctor MELVIN. I think that it has improved very greatly. There is a statement here that will show that about one-third of the cattle that were tested by him responded to this tuberculin test; that without his inspection these cattle would have been imported and would either have been destroyed here or possibly have passed inspection and gone into the country.

The CHAIRMAN. Has the Department been pursuing the method of making practically three tests of animals for export for any length of time, or has it been doing that all the while it has been making inspections?

Doctor MELVIN. That has been the practice ever since the inspection was inaugurated.

The CHAIRMAN. This \$208,000 for the eradication of scabies in sheep and cattle—that work is carried on, I see, in the States and Territories and at feeding stations and stockyards. That is largely, then, in the West, I suppose?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. What has been the effect of that inspection?

Doctor MELVIN. It has been to very materially decrease the amount of scab among live stock in the West, particularly scab among sheep. \$1,000,000 is saved annually by dipping sheep for scabies, and at least \$600,000 similarly in the case of cattle.

The CHAIRMAN. Is that inspection made before they are sold for transportation, or is it made generally throughout the country in the case of cattle found everywhere?

Doctor MELVIN. Considerable of that money was spent in cooperating with State authorities to eradicate the disease within these

(Witness: Melvin.)

particular States. In the States of Wyoming, Idaho, Utah, Arizona, New Mexico, and Colorado work was undertaken on quite an extensive scale to eradicate the disease among the sheep in those States.

The CHAIRMAN. Then you take sheep wherever they may be found in the possession of the owners?

Doctor MELVIN. Yes, sir; on the ranges or any place. They are subject to inspection and dipping.

The CHAIRMAN. You say the State authorities cooperate with the Department in that?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Do they bear part of the expense or furnish part of the men?

Doctor MELVIN. They provide the laws under which we can operate, and in some instances furnish quite a large proportion of the force that is engaged in the work, and we furnish another part of the force.

The CHAIRMAN. You say they provide the laws under which you operate?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Well, do the Federal officials go out there and enforce the provisions of State legislation?

Doctor MELVIN. Well, they provide under their State laws for this cooperation; otherwise we could not operate within the State. We could only control the interstate movement. By their providing laws under which we can operate within the State we can help to eradicate the disease within the State.

The CHAIRMAN. Then cattle that are not engaged in transportation are handled by you by authority of State legislation?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Because they have not become a part of interstate commerce?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. Now, about what proportion of this money that is expended is expended upon the sheep and cattle while they are within the exclusive jurisdiction of the State—that is, what part of the work is done on the cattle while they are in the possession of their owners, and before they become a part of interstate commerce?

Doctor MELVIN. I could only estimate that. I would say that probably two-fifths of the expense, or perhaps not that much, was for work within the State. Possibly that is a little too much, but not very much.

The CHAIRMAN. Where are your men located that look after these cattle after they become a part of interstate commerce?

Doctor MELVIN. You mean cattle and sheep, both?

The CHAIRMAN. Yes.

Doctor MELVIN. They are usually assigned to certain territory, following a line of railroad. They work between certain stations, it being the idea to make these inspections as far as possible before the cattle are loaded onto the cars, in order to prevent the contamination of the loading pens and of the cars and to avoid subjecting the owners to considerable expense and inconvenience by having to treat their cattle after they are shipped; so that, as far as possible, we have this inspection made before they enter the stock pens at the loading pen. Occasionally, where they are not very far removed

(Witness: Melvin.)

from the station, the inspector will go out several miles to make this inspection; sometimes right at the loading place. They travel back and forth upon the advice of the railroads as to the points at which they are going to have shipments.

The CHAIRMAN. Now, on further reflection, what percentage of the sheep and cattle that you inspect for that purpose are inspected under the authority of State legislation and prior to their being transported from State to State?

Doctor MELVIN. This that I just described would all be under the interstate movement.

The CHAIRMAN. Yes; but you first suggested that two-fifths might be too large.

Doctor MELVIN. That would be simply an estimate; I don't know but what that percentage would come as near to it as any other that I could make at this time.

The CHAIRMAN. You have no way, I suppose, of determining what proportion of the work done by your Bureau is for purely State purposes as distinguished from interstate?

Doctor MELVIN. The two branches of the work are so intimately related that it would take a very elaborate set of accounts to separate them, so we have never undertaken to do that.

The CHAIRMAN. Do the States in which you operate under State legislation, for the purpose of enforcing provisions of law relating to their stock and cattle, furnish men to cooperate with your men?

Doctor MELVIN. Yes, sir; in some instances. I think in nearly all the States they have some men; some States have more than others.

The CHAIRMAN. Are there provisions in that State legislation for the segregation of cattle, and the destruction of cattle, if need be?

Doctor MELVIN. Well, yes; in some instances. Usually it provides for the quarantine and treatment of the cattle to eradicate the disease. We would not attempt to enter into the eradication of the disease without a suitable State law under which to operate.

The CHAIRMAN. That requires the exercise of control over the cattle by whoever is doing the inspection?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And that control is exercised under some provision of law enacted by the State?

Doctor MELVIN. In several States their statutes make a provision whereby the inspectors of the Bureau of Animal Industry may become State inspectors, without compensation, in order to enforce their State laws.

The CHAIRMAN. Without becoming and acting as State inspectors they would have no authority?

Doctor MELVIN. No, sir.

The CHAIRMAN. Now, the United States Government, in those instances, simply pays the expense of inspecting the cattle over which the State has exclusive jurisdiction?

Doctor MELVIN. Yes, in one way; although in the case of many of these animals the range conditions are such that they travel from State to State. And that is particularly true in the case of sheep.

The CHAIRMAN. Well, that would hardly be interstate transportation; still I don't know but what you might predicate that idea upon a sheep moving from one State to another.

(Witness: Melvin.)

Doctor MELVIN. The general way in which they handle the sheep in the West is to graze them in the mountain sections in the summer and upon the deserts in the winter. In the winter they live very largely upon the sagebrush.

The CHAIRMAN. Have you any provisions of law—Federal law—that authorize you to exercise any control over cattle that you are inspecting or treating for this disease, until they become a part of interstate commerce or until they participate in interstate-commerce transportation?

Doctor MELVIN. The original act creating the Bureau, the act of 1884, provides specifically for cooperative work upon the part of the Bureau.

The CHAIRMAN. Yes; but does it give you any power to control in any way the cattle until they become a part of interstate commerce?

Doctor MELVIN. Oh, no. We can simply quarantine one State against the others, or a part of one State against another State.

The CHAIRMAN. This disease in horses called *maladie du coït* is treated under circumstances that are practically similar to those under which you treat scabies in sheep and cattle, I suppose?

Doctor MELVIN. We have not looked for much cooperation on the part of the States in that work. In cases where we have found the disease we have gone in and purchased and destroyed the animals in order to dispose of them. The eradication of this disease results in a saving of at least \$50,000 a year.

The CHAIRMAN. What is the nature of that disease?

Doctor MELVIN. It is somewhat allied to syphilis in man. It is a disease that is produced by a parasite which exists in the blood, and is transmitted through copulation.

The CHAIRMAN. You say, "inspection of southern cattle." Why is that differentiated from the cattle that you have already described?

Doctor MELVIN. That is on account of the zone where this tick lives which produces or is a carrier of Texas fever. It is necessary to provide an inspection for cattle from certain sections in order to be sure that the ticks are not carried by the cattle to northern cattle. The estimated value of southern cattle marketed annually during the closed season is \$1,000,000.

The CHAIRMAN. And is that inspection made without reference to whether they are a part of interstate commerce?

Doctor MELVIN. Yes; those inspections previous to this year were entirely for interstate shipments.

The CHAIRMAN. Previous to this year they were entirely for interstate shipments?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And this year what has been the difference?

Doctor MELVIN. We had a specific appropriation of \$82,500 given for the purpose of experimenting in the eradication of this tick; and in this instance we have made inspections for cattle within the State by cooperation with the State authorities, in the same manner as for this scab eradication. Tick eradication each year saves \$2,000,000.

The CHAIRMAN. And so far as you act under that, you act by virtue of the authority conferred by State legislation?

Doctor MELVIN. Yes, sir.

Mr. SAMUEL. You succeeded Doctor Salmon, did you not?

(Witnesses: Melvin, Zappone.)

Doctor MELVIN. Yes, sir.

Mr. SAMUEL. I notice on page 61 that Doctor Salmon receives \$1,666.66, and on page 85, under "Miscellaneous supplies," he receives \$1,000. I would like to know what that is for. Presuming that the first item was for salary, what was the other?

Doctor MELVIN. Yes; that is for salary; and on page 85 that was for service rendered after his separation from the service, in writing an article on tuberculosis.

Mr. SAMUEL. I notice you have a number of items of expense in connection with newspapers. Are they advertisements or subscriptions?

Doctor MELVIN. They are all advertisements; all the periodicals are purchased by the library of the Department.

Mr. SAMUEL. I notice you have dairy experts ranging from \$2,000 down to \$1 per diem.

Doctor MELVIN. In some cases that low salary is only part of the salary, the rest being paid by some of the States. When we have co-operative experiments we will sometimes bear a small part of some man's salary when he is employed by a State, as additional compensation.

Mr. SAMUEL. Here is P. H. Keifer, dairy expert, \$1 per diem for his salary and \$49.03 for traveling expenses.

Doctor MELVIN. What page is that?

Mr. SAMUEL. Eighty-three.

Mr. ZAPPONE. That is at the bottom of the column, "Dairy experts."

Mr. SAMUEL. The difference between the salary and the traveling expenses is so great that it attracted my attention.

Mr. ZAPPONE. Of course, you understand that includes his railroad transportation; he probably expended a large part of it for transportation.

The CHAIRMAN. How are your supplies purchased—by the central Bureau?

Doctor MELVIN. Not all of them. Some are obtained through competitive bids; some very small items are bought upon exigency statements—that is, amounts less than \$50. But usually all of them are bought under the contract price, which is made once a year.

The CHAIRMAN. In the case of these traveling expenses, which represent a pretty large sum of money, does the Department require vouchers to be furnished for all the items?

Doctor MELVIN. Yes, sir; in all instances.

The CHAIRMAN. And those vouchers are all on file?

Doctor MELVIN. Well, not all expenses. Their railroad fares, which of course are fixed and uniform, are not supported by subvouchers. Items such as single meals are not supported by subvouchers. All items for board, lodging, horse hire, and expenses of that sort must be supported by subvouchers.

Mr. ZAPPONE. The fiscal regulations of the Department provide that subvouchers must be obtained for all expenses over \$2. If they are not obtained the account must be sworn to before a notary.

The CHAIRMAN. Are there any men employed under your Bureau that are rendering service under any other bureau or bureaus?

Doctor MELVIN. Not wholly. We have men who are carried on

(Witness: Melvin, Zappone.)

our rolls for a time, rendering service to our Bureau, and who are then sometimes transferred to other bureaus for service.

The CHAIRMAN. My inquiry goes to the question as to whether they are rendering service elsewhere at the same time—that is, have you any men that are duplicating their service?

Doctor MELVIN. I think not.

The CHAIRMAN. Will you look that over carefully and ascertain what the fact is?

Doctor MELVIN. Yes.

Mr. ZAPPONE. Service or compensation, Mr. Chairman?

The CHAIRMAN. Whether they are rendering service elsewhere for which they receive compensation.

Doctor MELVIN. There is an item here for the partial service of Doctor Langworthy. The most of his service is in the Experiment Stations Division of the Department.

The CHAIRMAN. Is that under your Bureau?

Doctor MELVIN. No; that is under the general Department. We engaged him for a part of his time on some work for our Bureau, and he was then transferred from their salary roll to ours for that time. We paid his expenses while he was doing this work for our Bureau. After this work was done he was transferred back.

The CHAIRMAN. But what I want is this: Is there any man that is on the rolls of your Bureau who is on the rolls of any other bureau for services rendered and compensation received during the same period of time?

Doctor MELVIN. No; I think not.

The CHAIRMAN. Has that ever been the case in your Bureau?

Doctor MELVIN. No; I think never, as far as my recollection goes.

The CHAIRMAN. Are any of the men who are on the rolls of your Bureau rendering service to private individuals for which they receive compensation?

Doctor MELVIN. No.

The CHAIRMAN. You say there are none?

Doctor MELVIN. There are some that have special permission to do some work outside of official hours, but not during official hours.

The CHAIRMAN. Who are those that have special permission?

Doctor MELVIN. There are some that have asked the privilege of writing certain articles for periodicals and to prepare these outside of official hours.

The CHAIRMAN. Are there any who are engaged in continuous employment for private parties outside of official hours?

Doctor MELVIN. No; I think not. Several have permission to deliver lectures at universities or colleges once or twice a week during the session, for several weeks.

The CHAIRMAN. Do they receive additional compensation for that?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. That is, they do not receive additional compensation from the Government, but receive compensation from the college where the lecture is delivered?

Doctor MELVIN. Yes, sir. That is also done outside of official hours.

The CHAIRMAN. And whenever it is done it is by virtue of special permission granted by your Bureau?

(Witness: Melvin.)

Doctor MELVIN. By the Secretary.

The CHAIRMAN. Yes; by the Department?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. You may submit a statement on the utility of your Bureau.

(Statement of Doctor Melvin on the utility of the Bureau of Animal industry is as follows:)

The Bureau of Animal Industry represents the work of the Government in the interest of the live-stock industry. Some idea of the immensity of the interests with which it deals may be obtained from statistics. In 1906 the farm animals in the United States numbered 191,718,627, with the enormous valuation of \$3,675,389,442. To this should be added poultry, the fowls on farms, according to the census of 1900, being valued at \$85,794,996. The census gives the value of the products of slaughtering and meat-packing establishments—presumably not including slaughtering on farms and by local butchers—as \$913,914,624 in 1905, and the value of poultry and egg products as \$281,178,247 in 1899. The value of dairy products in 1905 was estimated at \$665,000,000. To promote and protect these vast interests is the work of the Bureau. In addition there are other large commercial interests, such as the railroads, which are more or less directly affected by the Bureau's work.

The work of the Bureau includes both administration and scientific research. Briefly stated, it consists of the inspection and quarantine of live stock, the inspection of meat and meat-food products, measures for the investigation, control, and eradication of animal diseases, and work in animal husbandry and in the interest of the dairy industry. This work requires the services of about 2,800 persons, and the appropriations for maintaining it during the fiscal year 1907 amount to \$4,029,480.

THE CONTROL AND ERADICATION OF CONTAGIOUS DISEASES.

The immediate purpose for which the Bureau was created in 1884 was the eradication of contagious pleuro-pneumonia of cattle. That fatal and treacherous disease had spread over a considerable portion of the country, and as a result of the prevalence of this and other animal diseases a number of foreign governments had either prohibited or greatly restricted the importation of our live stock and meats. After several years' arduous work, with inadequate funds and powers, and against many difficulties, the complete eradication of pleuro-pneumonia was accomplished.

In 1889 the southern cattle quarantine was instituted, as the nature and cause of Texas fever became better understood. This quarantine service permits the marketing of nearly a million and a half cattle a year from the infested districts, practically without danger to cattle from other sections, and at higher prices than would otherwise be possible.

An outbreak of foot-and-mouth disease in New England in the winter of 1902-3 threatened to do great damage to the live-stock industry of the country and to ruin our export in live stock. Cooperative work with the States involved was at once begun, and as ample funds were provided by Congress the disease was practically eradicated within the exceedingly short time of six months. Had this disease been permitted to spread to the large live-stock regions of the Middle West and far West, the damage would have been enormous.

For several years the Bureau has been working for the eradication of scabies of sheep and cattle in the West. These diseases are being gradually brought under control. Already Wyoming, Idaho, Utah, and Arizona have been practically freed from sheep scab, and the disease has been greatly diminished in other States. Good headway has been made against cattle mange in Kansas, Colorado, Wyoming, Texas, New Mexico, Oklahoma, North Dakota, and South Dakota. This work consists principally of inspection and dipping on the range and at shipping points, the object being to strike the evil at its source and thus prevent the contamination of the channels of interstate commerce and the spread of the infection. In the fiscal year 1906 the total number of inspections of sheep for scabies was 59,246,288, and the total number of dippings was 12,396,976. The number of inspections of cattle for scabies was 14,983,260, and the total number of dippings was 243,826. This work means an immense sav-

(Witness: Melvin.)

ling to the stockmen of the country. The eradication of sheep scab results in the production of a much larger amount of wool than is possible when the disease is present. One flock master with 40,000 head of sheep has stated that the dipping increased the yield of wool of his sheep $1\frac{1}{2}$ pounds a head, which, at the value of 20 cents a pound, amounted to \$12,000. In many flocks the proportion of increase would be much greater.

A new line of work undertaken during 1906 is the effort to eradicate the southern cattle tick, Congress having appropriated \$82,500 for a beginning in this work in cooperation with State authorities. The season was far advanced when the appropriation was passed (June 30, 1906), and the time was short for effective work; yet the results so far accomplished are very gratifying and encouraging. They indicate that the eradication of the tick is entirely possible, though it is recognized as a large and difficult undertaking. As a result of the first season's work it is believed that forty whole counties and parts of eleven other counties, with an area larger than the State of Virginia, can be safely released from quarantine. For many years the cattle tick and the infection of Texas fever which it transmits have been a great handicap to the livestock industry of the South. It is estimated that this tick is responsible for about \$40,000,000 of loss annually to the people in the infected country, and that it also lowers the assets of the South by an additional \$23,250,000. The eradication of this tick will be of incalculable advantage to the South and of great benefit to the entire country.

THE INSPECTION OF ANIMALS AND MEATS.

The meat inspection is the largest branch of the Bureau's work. In this service about two-thirds of the members of the force are engaged, and the appropriation for this work is \$3,000,000. The inspection is now conducted at more than 600 establishments, in 150 cities, and is being rapidly extended. During the fiscal year 1906 nearly 69,000,000 ante-mortem inspections and 43,000,000 post-mortem inspections of animals were made. There were condemned for disease or other cause 158,953 carcasses and 126,159 parts of carcasses. For the current year there will be a large increase in the number of animals inspected.

The new law of June 30, 1906, overcomes many of the disadvantages under which inspection was previously conducted and provides more money and gives greater powers. The inspection is now applied not only to the animals before slaughter and to their carcasses at the time of slaughter, as heretofore, but also to the meats and meat food products in all the stages and processes of preparation, curing, and canning. Sanitary equipment, conditions, and methods are required of the packing houses, the use of harmful chemicals and preservatives and misleading labels is not allowed, and the interstate and foreign traffic in meats is closely supervised.

This inspection system serves not only to protect the public health, but fosters and promotes our export trade in meats and meat-food products. Our exports of animals and animal products for the twelve months ending November 30, 1906, amounted to over \$301,000,000. Much of this trade would not be possible without the inspection system. The inspection of live animals for export is also conducted, by which the reputation for health of American live stock has been established and is maintained in the foreign markets. By inspecting and regulating the ships carrying export animals the losses have been reduced to almost nothing, and the rates of ocean insurance on cattle have been reduced from 8 per cent to one-half of 1 per cent.

The live stock of this country is protected from the contagious and destructive animal diseases which exist in other parts of the world by means of a careful and vigilant system of quarantine and inspection of imported animals.

Valuable service in behalf of our large export trade with Great Britain in animals and animal products has been performed by an inspector of the Bureau stationed in London. This inspector, with an assistant, examines United States animals on arrival at British ports, reports on their condition, and makes suggestions for improvements in methods of handling, shipment, etc. During the fiscal year 1906 there were so inspected 511,491 head of cattle, sheep, and horses. By keeping in close touch with British agricultural officials and prominent commercial men, giving them authentic and reliable information, and by reason of the confidence and influence which he has established among those classes, he

(Witness: Melvin.)

has in many ways rendered valuable assistance to our export interests. During the outbreak of foot-and-mouth disease in the New England States he was largely instrumental in prevailing upon the British authorities not to prohibit all live stock from the United States. In this way our exporters were enabled to continue shipments from all the usual ports except those immediately in the affected section. If this had not been accomplished, a very large loss to the country would have resulted. The London representative is also generally useful in collecting and transmitting to the Department information as to foreign affairs relating to its work or affecting the export trade.

For the convenience of importers of fine breeding cattle an inspector of the Bureau in Great Britain makes tuberculin tests of cattle intended for exportation to the United States. During the last fiscal year one-sixth of the cattle tested were found diseased with tuberculosis and were rejected. By this service the United States importers are enabled to buy cattle in Great Britain, subject to a reliable tuberculin test, with the assurance that they will be admitted into the United States. Otherwise they would often sustain heavy losses by having animals condemned and slaughtered on arrival in this country after they had bought and paid for them.

SCIENTIFIC INVESTIGATION OF DISEASES.

The scientific investigation of animal diseases has always been an important part of the Bureau's work, and some notable discoveries of great scientific and economic value have been made by the Bureau's staff and have gained for the Bureau a world-wide reputation.

About 1890 the Bureau demonstrated that the cattle tick, *Boophilus annulatus*, was the carrier of the infection of Texas fever, through the succeeding generation, from animal to animal. This opened up a new field in medicine and established for the first time the principle of the transmission of disease by insects acting as intermediary hosts. This mode of transmitting infection has since become quite familiar to the public by the discovery that certain species of the mosquito spread malaria and yellow fever among people.

The Bureau must also be credited with introducing the successful treatment of actinomycosis or lumpy jaw in cattle by means of iodide of potassium, thereby effecting a saving of \$250,000 annually.

The work done in the eradication of foot rot of sheep and cattle is worth \$150,000 annually.

Recent investigations have cleared up much of the mystery concerning hog cholera, which has puzzled the scientific world for years, and it is now known that the cause of the most acute and virulent forms of the disease is a virus that can pass through the finest filter and is invisible under the microscope. This work has since been confirmed by European scientists. A successful remedy has been worked out in an experimental way, and efforts are now being made to adapt it to practical and general use. This method has been patented in such a way as to allow anybody in the United States the right of its use free of royalty. Hog cholera has long been a cause of heavy loss to the farmer, and it is now believed that with the knowledge at hand it will be possible to reduce this loss very greatly in the future.

The investigations regarding tuberculosis have also given important results, and the work of the Bureau has thrown considerable light upon the problem of combating this disease, not only in animals, but in man. A conservative estimate of the value of these investigations is \$1,500,000 annually.

The Bureau laboratories prepare and distribute, free of charge, to health officers tuberculin for the diagnosis of tuberculosis in cattle and mallein for the diagnosis of glanders in horses. The free distribution of blackleg vaccine to stock owners has been continued for several years with excellent results. During the last fiscal year 1,350,915 doses of this vaccine were prepared and distributed. As a result of its use the losses of young cattle on which it is used have been reduced to about one-half of 1 per cent, whereas the losses without the use of vaccine were formerly as high as 10 or 12 per cent of the calves produced annually in the infected districts.

Some valuable work has recently been done in the investigation of internal parasites of sheep. The prevalence of these parasites has done great damage to the sheep industry in the eastern half of the United States, and has caused thousands of farmers to abandon sheep raising. By carefully studying one of the most troublesome of these parasites (the stomach worm) and establishing the principal facts in its life history the Bureau has placed before sheep raisers

(Witness: Melvin.)

information which will enable them very largely to prevent its ravages. Experiments indicate that it is entirely feasible to raise lambs free from this and some other injurious parasites. Our investigations along this line save \$500,000 annually.

Many pathological specimens are sent from various parts of the country to the Bureau laboratories for examination and diagnosis. Dogs and other small animals are examined and tests made for rabies. The pathological laboratory is a valuable accessory to the meat-inspection service, as specimens are often sent in for confirmatory diagnosis.

The Bureau owns an experiment station, consisting of a small farm near Washington, where animals are kept and experiments conducted in conjunction with the laboratories, which are located in the city.

WORK FOR THE DAIRY INDUSTRY.

The Dairy Division of the Bureau, established in 1895, has done much to promote and assist the dairy industry of the country. It assists the export trade in dairy products by inspecting them and certifying to their quality. It also supervises renovated-butter factories and inspects their products to guard against an unwholesome article being put upon the market. Its work includes butter investigations, market-milk investigations, cheese investigations, building and management investigations, and laboratory work.

It has conducted experiments to determine the best conditions for the manufacture and storage of butter and the manufacture and curing of cheese, and its experiments have made it possible to produce in this country cheeses of the finest European varieties. It studies the quality and character of butter as it comes to the large markets and reports defects to the makers, with suggestions for improvement. Over a thousand creameries have been assisted in this way, many of them to their material advantage. This division has recently devised a rapid method for determining moisture in butter, which will be of great practical value to creameries. Much of this work yields important financial results to the dairy industry of the country. An effort is being made to develop the dairy industry in the South, where there are not only great needs for improvement, but great possibilities. Much assistance is given to dairymen by the preparation of plans for improved and sanitary barns and other buildings. Investigations are being made to determine the best methods of producing clean, sanitary milk. Butter furnished to the Navy on contract is inspected and good quality required. The Bureau of Animal Industry has increased the value of dairy products at least \$3,000,000 annually.

ANIMAL HUSBANDRY.

It is only within recent years that it has been found practicable to take up any special work in animal husbandry. Experiments in animal breeding and feeding are now under way both independently and in cooperation with several of the State experiment stations. Probably the most important work of this kind is that undertaken in Colorado with the object of developing a class of heavy harness horses to meet a great need which has long existed in this country. Experiments in breeding Morgan horses have also been begun in Vermont. Cooperative investigations in poultry breeding and management with the Maine Experiment Station have shown that the egg-laying capacity of hens may be increased by selective breeding and proper feeding. Several of the hens have laid more than 200 eggs in a year. The success of this work means a substantial addition to the income of the farmers of the country, amounting to not less than \$200,000 annually. The estimated value of the investigations concerning fecundity of cows is \$100,000 annually.

PUBLICATIONS.

A very important feature of the Bureau's work is the dissemination of information by means of its literature. The special reports on Diseases of the Horse and Diseases of Cattle are among the most popular and helpful publications ever issued by the Government. The annual reports, bulletins, and circulars have a wide circulation and give valuable information to the farmer, the stock raiser, the scientist, and the general public.

Whereupon (at 3.30 o'clock p. m.) the committee adjourned, until 11 o'clock to-morrow morning, January 15, 1907.

COMMITTEE ON EXPENDITURES IN THE DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., January 23, 1907.

CIVIL SERVICE COMMISSION, Washington, D. C.

GENTLEMEN: Will you be kind enough to advise me how many persons have been examined, how many persons have been passed, and how many appointed from the civil-service lists to the public service in the Department of Agriculture for the year 1906, giving the number for the different positions and especially with reference to scientific assistants?

Also please advise me further if you have had any applications from the Department of Agriculture for places which you have not been able to fill from your examinations, and if so, how many and when, and for what places.

Yours, very respectfully,

C. E. LITTLEFIELD.

UNITED STATES CIVIL SERVICE COMMISSION,
Washington, D. C., January 30, 1907.

HON. C. E. LITTLEFIELD,
House of Representatives.

SIR: In further response to your letter of January 23, the Commission has the honor to inclose herewith a table showing the number of persons examined, those who passed, and those who were appointed to positions in the Department of Agriculture during the fiscal year ended June 30, 1906, from examinations held especially for that Department. The list does not include appointments to the Department of Agriculture from the general departmental registers, such as for clerks, stenographer and typewriter, bookkeeper, messenger, watchman, and skilled laborer, as these registers are established to fill positions in all parts of the Federal civil service, and as it is not understood from your letter that you desire this information.

For your information it may be stated that since the 1st of July last the Commission has held examinations for inspector of meat products (under the meat-inspection law), tagger, and veterinary inspector, and that over twelve hundred appointments have been made from the registers for these positions during the past six months. The only position in the Department of Agriculture for which the Commission experiences difficulty in securing eligibles is that of veterinary inspector. By holding the examination for veterinary inspector frequently, however, the Commission has been ultimately able to secure a sufficient number of eligibles to meet the demands of the service in this respect.

Your attention is also invited to the inclosed announcement of examinations to be held on the dates given for the purpose of securing eligibles to fill certain positions in the Department of Agriculture, including inspectors under the pure-food law. Announcements will also be made within a few days of an examination for the position of civil-engineer student in the Division of Public Roads, at \$50 a month, and of an examination to fill the position of clerk, stenographer, and typewriter in the Forest Service at Nevada City, Cal.

By direction of the Commission.

Very respectfully,

JOHN C. BLACK, *President*.

Table showing the number of persons examined, those who passed, and those who were appointed to positions in the Department of Agriculture during the fiscal year ended June 30, 1906, from examinations held especially for that Department.

Kind of examination.	Number examined.	Number passed.	Number appointed.
Agriculturist in dry-land agriculture	17	4	.....
Assistant lumberman	65	19	.....
Assistant superintendent of seed warehouse and seed distribution	22	7	1
Bacteriological chemist	14	6	3
Chief of sugar laboratory	7	5	.....
Computer, Bureau of Forestry	16	1	1
Food-inspection chemist .....	.....	.....	a 4
Forest assistant	70	37	b 53

Table showing the number of persons examined, those who passed, and those who were appointed to positions in the Department of Agriculture, etc.—Continued.

Kind of examination.	Number examined.	Number passed.	Number appointed.
Forest ranger.....	1,204	729	246
Forest supervisor.....	151	75	9
Herdbook assistant.....	16	9	.....
Inspector of grazing.....	180	36	3
Inspector of seed warehouse and seed distribution.....	20	8	1
Laboratory aid.....	69	32	5
Laboratory helper.....	43	40	17
Observer, Weather Bureau.....	.....	.....	α 43
Plant pathologist.....	7	4	2
Plant pathologist and entomologist.....	13	11	1
Poultry assistant.....	89	9	.....
Scientific assistant.....	182	105	74
Tagger, Bureau of Animal Industry.....	.....	.....	α 25
Technical assistant in pharmacology.....	20	9	1
Veterinary inspector.....	251	113	57

α Examination held in previous fiscal year.

β Some of these appointments were made from an examination held in the previous fiscal year.

The majority of the examinations from which none or only a few appointments have been made, as indicated above, were held toward the close of the fiscal year and the appointments were made after July 1, 1906. In some cases, however, the examination was held to fill but one vacancy.

ANNOUNCEMENT OF EXAMINATION FOR INSPECTOR OF MEAT PRODUCTS.

The facilities the Commission has at hand for securing promptly a large number of persons qualified along special lines have been well illustrated by the examination for inspector of meat products held as a result of the act approved June 30, 1906. In the course of the debate on the measure some doubt was expressed by various Members of Congress as to whether the Commission would be able to secure qualified inspectors rapidly enough to meet the needs of the service. The act, however, as passed did not take the positions out of the competitive classified service, and results have demonstrated the wisdom of this course. On July 2 the Department of Agriculture asked the Commission to hold an examination to carry out the provisions of the law. Twenty-four hours thereafter an announcement giving the scope, times, and places of the examination was sent to the press, to local boards of examiners, and to various institutions through whose agency it was believed that competent inspectors could be secured. Applications came in from every section of the country, and the examination was held on July 21 at about 200 places, at which 2,496 persons appeared, 795 of whom attained eligible ratings. On July 28 the first certification of 51 names was sent to the Department, and within a few days of that time all the papers were rated.

Owing to the heavy demands of the Department, the papers of persons receiving ratings of 65 per cent or over were made eligible, and as a result of this action 825 selections in all have been made from the registers of the Commission. This office has been informed by the Department of Agriculture that the results have been satisfactory. A considerable number of excellent employees has been secured, and an extremely small percentage of those certified has turned out to be unsatisfactory. The Commission has now established a second register, and is prepared to meet the future needs of the service. It is not believed to have been possible for the Department of Agriculture, with the machinery at its disposal, to itself weed out of the large number of applicants those not having the necessary qualifications for the position in anything like the time actually occupied by the Commission in accomplishing this task. In further illustration of the Commission's ability to supply large numbers of eligibles it may be added that almost 2,000 appointments have been made within the past four months from the examinations for meat inspector, forest ranger, veterinary inspector, printer's assistant, meat tagger, and forest supervisor.

(Twenty-third Report, Civil Service Commission, pp. 7 and 8.)

BUREAU OF PLANT INDUSTRY.

JANUARY 17, 1907.

(Part of testimony given on above date before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF DR. B. T. GALLOWAY, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. Will you state what, if anything, is being done so far as you know with reference to bringing about coordination in the Departments in connection with this question of the collection of statistics, Doctor Galloway?

Doctor GALLOWAY. Mr. Chairman, I can answer only in a general way. The question of statistics has not been specifically taken up by the subcommittees of the Keep Commission, but it is the object of the committees to survey the whole field and make recommendations to the Secretaries in reference to the organization of committees in the Department and recommendations in reference to the organization of committees for the purpose of coordinating the work of the Departments. That is about as far as the committee work has proceeded.

The CHAIRMAN. That would involve, when it is carried out in its details, the statistical work as well as other work?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. So that that general comprehensive plan is now under consideration?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And is it being adopted, or is it simply being considered by the committee?

Doctor GALLOWAY. The subcommittees have only gotten to the point of making specific recommendations for the appointment of committees within the Departments, and the President has issued an order to that effect, and the Secretary of Agriculture has recently promulgated such an order directing chiefs of Bureaus to appoint committees within their respective bureaus to consider certain phases of their work, and coordinate their work, and coordinate the work of their bureaus with other bureaus in the Department. That is as far as it has gone. I will put in the record the order of the Secretary with reference to the Department of Agriculture upon this subject.

(The paper referred to is as follows:)

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., December 24, 1906.

General Order No. 105.

In conformity with the recommendations of the committee on Department methods, approved by the President, the following is promulgated:

(Witness: Galloway.)

1. A committee on business methods is hereby appointed for the Department of Agriculture, to consist of the Chief of the Bureau of Animal Industry as chairman, the Chief of the Bureau of Plant Industry, the Chief of the Forest Service, the Chief of the Bureau of Soils, and the Disbursing Officer. The duty of this committee shall be "to report to the Secretary of Agriculture, as he may direct, plans for new methods of routine business, changes in the system of bookkeeping, correspondence, filing, and office procedure generally, as well as to undertake specific duties within its field assigned to it by the Secretary. It should also be the definite duty of the committee to know thoroughly the business methods prevailing in the various offices of the Department, to investigate them when necessary, and on its own initiative to recommend to the Secretary advisable changes or modifications in these methods."

2. The chief of each bureau, office, and independent division is hereby ordered to appoint a committee in his bureau, office, or division, to be known as the bureau, office, or division committee. Its membership shall include all officers who report directly to the chief of the bureau, office, or division. This committee shall meet once a week. The chief of the bureau, office, or division shall be its chairman. The work of the committee shall be advisory only. It shall make definite recommendations, but the power of final decision shall rest, where it belongs, with the administrative head of the bureau. The purpose of this committee is to promote cooperation by all of the subdivisions in the promotion and advancement of the work of the bureau—in brief, to promote "team work."

To indicate more clearly the scope of the work of such bureau committees the following order of business is suggested:

(1) Statement by chiefs of new, current, or proposed work or methods.

(2) Reports of subcommittees which may from time to time be appointed to consider or investigate special subjects.

(3) Miscellaneous business.

Topics for consideration under the last title are: (a) Cooperation; (b) co-ordination of work; (c) business methods; (d) policy.

3. It is also ordered that committees on business methods be appointed by the chiefs of the Bureau of Animal Industry, the Weather Bureau, the Bureau of Plant Industry, the Forest Service, and the Bureau of Chemistry, in view of their complicated organization and large personnel. In each instance this committee, which shall be composed of three members from the bureau committee, shall be charged with duties similar to those of the Department committee on business methods, except that their work shall be confined to their own bureau and their recommendations be made to the chief thereof.

4. The committees created by the foregoing order will cooperate with the general Department council, or committee, which, headed by the Secretary and made up of his principal subordinates, was established in this Department some time since to promote cooperation, to improve methods, to develop "team work," and to avoid conflict and duplication.

JAMES WILSON,
Secretary of Agriculture.

The CHAIRMAN. You are the Chief of the Bureau of Plant Industry?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. How long have you held that position?

Doctor GALLOWAY. Since the Bureau was organized. The Bureau, as a bureau, has been organized for six years. Prior to that time there were several divisions in the Department that were separate and independent. I had been a chief of one of these divisions for twelve or fourteen years prior to being made chief of Bureau, and when the Bureau was organized and these divisions were incorporated in the Bureau I was made chief.

The CHAIRMAN. How many independent divisions were incorporated into the Bureau?

Doctor GALLOWAY. Six or seven.

The CHAIRMAN. What was the purpose of the creation of the Bureau?

(Witness: Galloway.)

Doctor GALLOWAY. The purpose of the creation of the Bureau was to coordinate and unify the work and to simplify in every practicable way the handling of the problems that were coming up in connection with plant investigations.

The CHAIRMAN. Was there any duplication of work among these six divisions prior to the organization of the Bureau?

Doctor GALLOWAY. Not at that time; but the tendency was in that direction.

The CHAIRMAN. Did the organization of the Bureau increase or decrease the cost to the Government of the carrying on of the work?

Doctor GALLOWAY. It decreased it.

The CHAIRMAN. In what way?

Doctor GALLOWAY. It decreased it by making unnecessary the keeping of separate and distinct accounts for the different branches of the work. It decreased it in making it practicable for us to unify many systems of handling the work, getting supplies, handling supplies, handling labor, securing men, and in other directions.

The CHAIRMAN. Did it result in your being able to reduce the personnel?

Doctor GALLOWAY. No; the personnel was not reduced at the time, except in certain minor directions.

The CHAIRMAN. Was there any appreciable reduction in the personnel?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. Then, if there was no appreciable reduction in the personnel, in what particular was there any decrease in expense to the Government?

Doctor GALLOWAY. The decrease came primarily and mostly, as I have indicated, in the simplification of the handling of accounts, and in the simplification of the handling of our work. While it did not diminish the personnel—the number of people—it enabled the people we had to do more work than they theretofore had done.

The CHAIRMAN. If the men that you had when the divisions were separate and independent accomplished the results that were desired up to that time, and then when the divisions were consolidated in one Bureau they were able to accomplish more, why did not that result in rendering a certain percentage of the personnel unnecessary?

Doctor GALLOWAY. Simply because we have ten times more problems and more questions and more work than we are able to do.

The CHAIRMAN. Then at that time, if I understand it, when you had the six divisions, and changed over into the Bureau, there was either an accumulation or else a lot of work pressing that it was important for you to do?

Doctor GALLOWAY. There was a lot of work pressing that it was not practicable to do, chiefly on account of lack of men and funds. The funds of the Bureau have been largely increased since its organization.

The CHAIRMAN. Yes. Then that is the solution of that. While it rendered your existing force more efficient and capable of accomplishing larger and better results, there was work on hand to be done that could not before that time be accomplished, and could not be

(Witness: Galloway.)

done with the force you had on hand and the money at your disposal. Am I right? Is that it?

Doctor GALLOWAY. Yes; that is the fact.

The CHAIRMAN. What were these six different divisions called when you organized the Bureau?

Doctor GALLOWAY. We had a division of botany, a division of physiology and pathology, a division of pomology, a division of agrostology, a division of gardens and grounds, and a division of seeds.

The CHAIRMAN. That is six. Have those divisions lost their identity under the bureau system, or do you maintain in substance that differentiation of work?

Doctor GALLOWAY. We maintain in substance only that differentiation of work, for the reason that the problems that we are carrying out can be much better carried out by decentralization processes than by centralization processes, and we no longer speak of them as divisions. The division lines have been entirely eliminated. We have a man, for example, working on fruit, and in connection with his fruit work he may be a good pathologist. He may come in contact with a disease problem, and he may have had the training that would enable him to finish up that problem. Under the old plan of having these divisions it would not have been practicable for that man to carry it out.

The CHAIRMAN. Under the old plan he simply confined himself to his special line?

Doctor GALLOWAY. He simply confined himself to his special line.

The CHAIRMAN. Under this new plan you utilize him in connection with everything he is able to do?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Or, in other words, you make it a broad subject instead of a narrow subject?

Doctor GALLOWAY. Yes, sir; or, putting it another way, we make the man and the problem go together and stay together until that problem is rounded out and completed.

The CHAIRMAN. Even if that should happen to involve what might, under other circumstances, be separate and independent scientific lines of investigation?

Doctor GALLOWAY. Yes, sir. If the man is capable of handling the problem, we let him stay with it until he has completed it.

The CHAIRMAN. Whereas in the other way you would have one man at work on one scientific phase of it and another man at work on another scientific phase of it?

Doctor GALLOWAY. Yes, sir; and we had the constant insistence of these separate and distinct men not to get over onto their territory because that was their territory. That has now all been done away with.

The CHAIRMAN. The total expenditure under your Bureau is about \$1,184,890, I gather.

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. You have personal charge of the personnel?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Questions of promotion and employment are, in the last analysis, determined by you?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Of course I do not suppose that you have, perhaps, personal contact with every employee?

Doctor GALLOWAY. Oh, no; but I act as a court of last resort on such matters.

The CHAIRMAN. You have the final determination?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Subject, I suppose, to revision by the Secretary, even in your case?

Doctor GALLOWAY. Yes.

The CHAIRMAN. But, of course, the Secretary relies upon you for the immense bulk of the detail?

Doctor GALLOWAY. Mainly; yes, sir.

The CHAIRMAN. Are there any men that are employed in your Bureau that are on the rolls of any other bureau?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. Are there any men that are employed in your Bureau, either here in Washington or in the field, that are engaged in any other employment, either public or private?

Doctor GALLOWAY. Yes; there are such men. We have cooperators and collaborators in colleges and in experiment stations who are also working for the Bureau as collaborators and cooperators. We also have one or two—I do not recall just how many—persons that are engaged in private business that are also collaborators on some special subject. By a collaborator, I mean a man who does not draw a salary exceeding \$300 per annum.

The CHAIRMAN. And these you have spoken of are all below that?

Doctor GALLOWAY. Yes, sir.

Mr. ZAPPONE. That salary is fixed by the Civil Service Commission.

Doctor GALLOWAY. That is fixed by the law.

The CHAIRMAN. Do you have any difficulty in getting clerks employed in your Department so as to keep up your force from the eligible list, as the result of the civil-service examinations?

Doctor GALLOWAY. We have no difficulty whatever in getting clerks. We have great difficulty in getting experienced experts in our different scientific branches.

The CHAIRMAN. What do you call them in your list here—clerks?

Doctor GALLOWAY. No; they are put down as experts or assistants, scientific assistants, or special agents; not clerks. They are divided into distinct groups.

The CHAIRMAN. Are those the men that are mentioned briefly on pages 104, 105, 106, 107, etc.?

Doctor GALLOWAY. Yes, sir; they are.

The CHAIRMAN. Take, for instance, page 104. You have there "Physiologist and pathologist, at \$3,000."

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Beginning with that list, are these scientific men that you have spoken of mainly included in that list?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Do these men enter the service through the civil-service examinations?

Doctor GALLOWAY. Yes.

(Witness; Galloway.)

The CHAIRMAN. You say you have difficulty in getting these men?

Doctor GALLOWAY. Very great difficulty.

The CHAIRMAN. Which kind of men do you have the greatest difficulty in getting?

Doctor GALLOWAY. We have the greatest difficulty in getting men well trained in pathology and physiology, in advanced horticulture, and in other lines of work requiring these sciences to carry on our investigations. Probably the field of pathology is the most difficult one to get men for, because they are not being trained very rapidly by the colleges and universities.

The CHAIRMAN. Is that because there is not much of any demand in private employment for men of that character?

Doctor GALLOWAY. Partly, and partly because the science is new and there is a lack of proper instructors, proper teachers, in the institutions that turn out the men.

The CHAIRMAN. That calls for a class of specialists in that science?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Is there any demand of any consequence for those specialists outside of your Bureau of Plant Industry?

Doctor GALLOWAY. Well, yes; there is a demand for such men in the experiment stations and in the colleges.

The CHAIRMAN. You refer to the State experiment stations?

Doctor GALLOWAY. The State experiment stations.

The CHAIRMAN. But other than the State experiment stations and your Bureau, is there any demand?

Doctor GALLOWAY. There is a demand for men who have given a practical trend to their investigations. Where the man is temperamentally qualified and we find that his best work is done in the laboratory, there is not the demand in private work for him that there is for the man who gives his investigations a practical direction. We are losing men frequently—

The CHAIRMAN. You mean the man that can go out and take the plants themselves and reduce his theoretical information to—

Doctor GALLOWAY. To dollars and cents.

The CHAIRMAN. To practical results in connection with the development of the plant itself?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Where does a man like that get employment by private parties, as distinguished from your experiment stations and your Bureau?

Doctor GALLOWAY. We have a man, for example, who is expert in the knowledge of the breeding, selection, and improving of tobacco. He becomes familiar with the practical methods of growing tobacco and the fermenting of tobacco. That man will become very valuable to a private concern to come and act as a director or a promoter of the private work that they wish to do. To-day I was notified by one of my men that he will leave early in the spring to take just such a place. He goes to Florida to go into the employment of a concern there that will handle large quantities of tobacco.

The CHAIRMAN. These men engaged in agriculture of that character are now beginning to avail themselves of the scientific knowledge these men of yours have?

Doctor GALLOWAY. Yes.

(Witness: Galloway.)

The CHAIRMAN. That is the point, is it?

Doctor GALLOWAY. Yes. We had a trained physiological chemist and pharmacologist, to whom we gave the problem of developing the camphor industry in this country. We wanted to grow our own camphor. This gentleman took up his work in Florida and carried it to such a point that the practical end of it was in sight, and a large company manufacturing celluloid has taken that man, and he will establish a camphor grove of 2,000 acres in Florida, and they will use this man as their expert to get the camphor out for their purposes, and we lose him.

The CHAIRMAN. Were men of this special kind of scientific knowledge getting any employment or being utilized to any extent by private persons engaged in agriculture or in the utilization of the products of agriculture prior to the development of this kind of scientific investigation on the part of the Department of Agriculture?

Doctor GALLOWAY. Not to any great extent, except in the field of chemistry. Of course they were in that field.

The CHAIRMAN. That is very old, of course.

Doctor GALLOWAY. That is old. But this development of new industries calls for the development of new men that can handle these industries, and the Department is, in a measure, a training school for such men.

The CHAIRMAN. Is it your idea that the development of this line of investigation on the part of your Department was educative in its character and led private enterprise to avail itself of this scientific information and knowledge?

Doctor GALLOWAY. Yes, sir; that is one of the objects of our work.

The CHAIRMAN. Do men in private employment receive more or less than the men that you have employed in your Department in the same lines of industry?

Doctor GALLOWAY. More.

The CHAIRMAN. Do you think that is universally true?

Doctor GALLOWAY. I think it is; yes.

The CHAIRMAN. And about what percentage in excess?

Doctor GALLOWAY. I am speaking now of our scientific men; I am not speaking of clerks.

The CHAIRMAN. No; I will come to that later.

Doctor GALLOWAY. I am speaking of the scientific men. The private interests are always willing to pay from 25 to 50 per cent more than we pay for the work that we want done by our men.

The CHAIRMAN. Would that be true of graduates, or does it apply more particularly to men that have had a course of training in your Department?

Doctor GALLOWAY. It applies more particularly to the men who have had training in our Department, and the men who have really proved themselves and have "made good," so to speak.

The CHAIRMAN. And who have had the opportunity to do so through service in your Department.

Doctor GALLOWAY. Yes.

The CHAIRMAN. So that while they have been receiving salaries from the Department, they have at the same time been accumulating experience and information that render them valuable to private parties?

(Witness: Galloway.)

Doctor GALLOWAY. That is very true; yes.

The CHAIRMAN. And that would not necessarily indicate, as a broad and general proposition, that, independent of this drill and training, they would get the increase of salary from private parties as compared with the salaries paid by the Government. Would it?

Doctor GALLOWAY. If I catch your correct meaning, you mean that—

The CHAIRMAN. That independent of the experience and training—

Doctor GALLOWAY. If you eliminate the experience in the Department, those men would not command any higher salary in private life than they would in public life. Is that what you had in mind?

The CHAIRMAN. Not exactly that; but the proposition is this: Independent of the experience and training they get in the Department, those same men would not get outside larger compensation than they are now getting inside the Department. I suppose that is perhaps another way of reaching the fact as to whether the men who come into your Department would get any more salary outside than they get in your Department, as a rule. Take the college graduates, or the men that go into your Department on the scientific side; would those men, on the threshold of their careers, at the time of entering the Government employment, get larger compensation from private parties than they could from the Government?

Doctor GALLOWAY. Generally speaking, no; but occasionally they are men who, even as students, have exceptional qualifications.

The CHAIRMAN. Such a man would be an exceptional man, of course.

Doctor GALLOWAY. Yes; an exceptional man.

The CHAIRMAN. But, of course, I am speaking of it in a broad and general way. We have to treat it as a general proposition.

Doctor GALLOWAY. Yes.

The CHAIRMAN. And is it not rather the fact that men do not leave your Department unless they have demonstrated unusual ability and efficiency which comes to the knowledge of private parties and therefore makes them more desirable for them?

Doctor GALLOWAY. We have men leave us for other reasons. That is, they simply prefer to go into private work of their own. For instance, we may have a young man come to us and stay with us three or four years, become familiar with general lines of agricultural work, and then take up farming as a business. But we do not have very many cases of that kind.

The CHAIRMAN. What percentage of your force do you lose by resignations, would you say, on account of their ability to earn more money in private life? Of course you can only give an approximation of that.

Doctor GALLOWAY. Is that exclusive of the agricultural experiment stations that take our men?

The CHAIRMAN. No; I will take your scientific men first.

Doctor GALLOWAY. In the case of scientific men, I should say probably 2 per cent. The experiment stations of course take more of our men than private concerns.

The CHAIRMAN. Yes. That, however, is simply a shifting from one public employment to another public employment?

(Witness: Galloway.)

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Then that is almost a negligible factor?

Doctor GALLOWAY. Well, it may appear negligible when I say 2 per cent; but it sometimes makes a very vital difference in a certain piece of work where a particular man may be carried off.

The CHAIRMAN. If you happen to lose an especially valuable man, of course that is true.

Doctor GALLOWAY. Yes.

The CHAIRMAN. Of course, that is true; but in the aggregate of your personnel of scientific men it is not a very important factor at any rate?

Doctor GALLOWAY. Not so far as numbers are concerned.

The CHAIRMAN. Does it embarrass you as a matter of efficiency?

Doctor GALLOWAY. It does not embarrass us long, for the reason that our policy always is and has been to keep a corps of men under training, and we have men who step right into the other men's places as vacancies occur.

The CHAIRMAN. So that the Department never has been embarrassed by that fact, then?

Doctor GALLOWAY. No; never seriously embarrassed.

The CHAIRMAN. Of course you have—

Doctor GALLOWAY. We have temporary embarrassment.

The CHAIRMAN. You could not help having it if you had an unusually efficient man who left you?

Doctor GALLOWAY. Yes.

The CHAIRMAN. With reference now to your clerks generally, you have the same method of segregating your force into clerks that they have in the other Bureaus; and you have clerks beginning at what salary?

Doctor GALLOWAY. \$1,800.

The CHAIRMAN. No; beginning at the lowest salary.

Doctor GALLOWAY. We have clerks beginning as low as \$600.

The CHAIRMAN. You have clerks beginning as low as \$600, and running up, by gradual increases, until you reach clerks—

Doctor GALLOWAY. Clerks of the fourth class, \$1,800.

The CHAIRMAN. Yes; clerks of the fourth class. That is \$1,800, is it?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Upon what basis, Doctor Galloway, do you differentiate between those various classes? What I want to get at is whether or not it is on the basis of increased efficiency or length of service, for the purpose of encouraging men to enter the service with the expectation of receiving higher compensation later on. I would like to have you state, in the first place, how you differentiate, and then I will pursue that inquiry a little bit further.

Doctor GALLOWAY. Yes. I think we have probably the only specific plan of differentiating clerks in the Department. We differentiate them purely on a basis of efficiency—that is, we have in the Bureau of Plant Industry an efficiency board; and there are brought before that board all questions of promotion, and the differentiation of the clerks into classes is based on specific elements which we have determined upon and which, if you want them in detail, I can place on the record, because we have the matter printed.

(Witness: Galloway.)

The CHAIRMAN. You may state that as briefly as you can.

Doctor GALLOWAY. I will state that the clerks are differentiated as to efficiency on ratings that we make twice a year. The ratings call for statements from the men under whom the clerks directly work as to the quantity and quality of the work that the individual clerk turns out; the question as to whether the clerk is able to carry on work without direct supervision; the question as to whether the clerk is sick or absent a considerable portion of the time; a general statement as to the clerk's habitual deportment, and so on.

This information is brought out by a series of questions, and the answers are given on a percentage basis, and the percentages are averaged, and each clerk's efficiency for accomplishing work of the kind that he does is shown on his sheet. The clerk himself has an opportunity to make a statement as to his work and qualifications. We then make up a list of the clerks in these various grades, placing the clerks who have the highest ratings at the top and those who have the lowest ratings at the bottom, and arrange them in the order of their efficiency as shown by percentages, and then we notify each clerk what his standing or grade is. If he falls below a certain grade, he is warned; if still lower, he will go out.

The CHAIRMAN. What is your percentage below which if a man falls it cuts him down in his salary or reduces him below a class that eliminates him from the service?

Doctor GALLOWAY. It is 80.

The CHAIRMAN. If he falls below 80, that indicates that he has to step down?

Doctor GALLOWAY. A grade.

The CHAIRMAN. Into the grade below.

Doctor GALLOWAY. Yes.

The CHAIRMAN. And what figure eliminates him from the service?

Doctor GALLOWAY. 70.

The CHAIRMAN. Are the records thus kept open to the inspection of the clerks?

Doctor GALLOWAY. Not the records of all clerks; but each individual clerk knows his own record, and he can have it at any time.

The CHAIRMAN. Is the record of each individual clerk open to the individual?

Doctor GALLOWAY. Yes; he can know and will be told at any time just what his rating is, and where he stands on that particular list. If he is a clerk of the first class, he will be told that he is sixth, seventh, tenth, fifteenth, or first, as the case may be.

The CHAIRMAN. And his attention is called to the various elements and his standing therein, so that if he sees fit to improve his standing he is given an opportunity to do so?

Doctor GALLOWAY. Yes; his elements are differentiated on the card that he receives, so that he can see where he is high and where he is low.

The CHAIRMAN. And that gives him an opportunity to bring himself up to the standard of the board if he wishes to do so?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Are your promotions made substantially invariably as the result of that investigation?

Doctor GALLOWAY. Yes, sir; invariably.

(Witness: Galloway.)

The CHAIRMAN. Invariably?

Doctor GALLOWAY. Invariably.

The CHAIRMAN. That is, you do not allow anyone to step in and request the promotion of a certain man?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. To a position in advance of the position he is entitled to?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. You may allow him to step in, but you do not allow him to produce the result?

Doctor GALLOWAY. No; he steps in once in a while, but that does not produce the effect he has in mind.

The CHAIRMAN. You simply give every one a fair show, in other words?

Doctor GALLOWAY. We give every one a fair show.

The CHAIRMAN. And give them the benefit of everything they are entitled to as a result of what they have done?

Doctor GALLOWAY. Yes; and that has resulted in the clerical personnel of the Bureau understanding that it is on merit alone that they advance. And it has enabled us also to determine in a measure, in probably the only practicable way, what really constitute the elements that differentiate one clerk from another. That is, here is one man sitting at a desk doing a certain kind of work, and another man may be sitting at a desk in the same room, and these men may be doing almost the same work; but there will be enough difference, after we take into consideration these various elements, to segregate one man from the other. Of course, it is not always practicable or possible to run these differences out in minute detail.

The CHAIRMAN. What you mean by that is that you do not get an absolute mathematical result?

Doctor GALLOWAY. No, sir; we can not do that.

The CHAIRMAN. But of course you approximate it and give each man the benefit of the same approximation?

Doctor GALLOWAY. Yes, sir. I might add that after we had carried on this plan for a time we found that there was one element lacking, and that was a general statement from the superior officer as to what, in his own mind, the standing of the man was.

The CHAIRMAN. In other words, that involved the personal equation?

Doctor GALLOWAY. The personal equation.

The CHAIRMAN. The general question involved in that, which you could not reduce to an arithmetical demonstration?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. In other words, you called for his individual opinion of the fitness of the man as a whole?

Doctor GALLOWAY. We assumed that if a clerk worked under a man for a year or two years, the superior should have formed an opinion as to that man's value for the particular thing or things that he had him doing.

The CHAIRMAN. Have you any old men in your Bureau?

Doctor GALLOWAY. We have one or two.

The CHAIRMAN. How old?

Doctor GALLOWAY. The oldest man is about 75, I think, or 76.

(Witness: Galloway.)

The CHAIRMAN. Of course I do not want to do anything invidious, but I simply want to get an idea of how this rule works. You need not give his name. For instance, when a man gets to be 75 years old, if it turns out as a result of this system of examinations that you make and records that you keep that his efficiency diminishes, what do you do with him?

Doctor GALLOWAY. We move him down a grade or grades. We did this in the particular case that I have in mind.

The CHAIRMAN. Then, what you intend to do with this plan that you have adopted and are enforcing upon both young men and old men, as I understand—

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN (continuing). Is to get the same relative results to the Government in units of work from every man?

Doctor GALLOWAY. That is what we want.

The CHAIRMAN. If a man gets \$1,800, you expect a certain number of units of work. If he gets \$1,200, you expect a relatively less number of units of work. If he has been drawing \$1,800 and is 75 years old, and you can only get from him the units of work that follow a \$1,600 salary, you reduce him?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. That is the way this plan operates?

Doctor GALLOWAY. We reduced this man of whom I speak from \$1,600 to \$1,200 because we considered that at his age that practically represented his possibility of units of work.

The CHAIRMAN. And if it turned out later that he could not accomplish more than a man that you are paying \$600 under your plan, you would feel bound to reduce him to \$600?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And later drop him from the service?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. I do not see but what if that plan was used all around, everywhere, it would straighten the thing out pretty well.

Doctor GALLOWAY. We think it is working pretty well.

The CHAIRMAN. This is the first time we have struck it. Why would not that be a good method to adopt in connection with all the Bureaus of the Department of Agriculture?

Doctor GALLOWAY. I think it would, sir.

The CHAIRMAN. You have had this plan for six years?

Doctor GALLOWAY. We have not had this particular plan for six years.

The CHAIRMAN. How long has it been in operation?

Doctor GALLOWAY. We have had the plan developing for two years.

The CHAIRMAN. What has been the result of this plan during the last two years with reference to the real efficiency of your Bureau in getting results that are valuable to the Government as compared with the preceding four years under your administration? That is, have you improved the service, or have you simply maintained its efficiency, or is the service less efficient than it was before? Which of those three alternatives is true?

Doctor GALLOWAY. I think we have improved the service.

The CHAIRMAN. To such an extent as would enable you to give a

(Witness: Galloway.)

reasonable approximation as to the percentage to which it has improved?

Doctor GALLOWAY. No; because it is one of those intangible things that I could not express in percentages.

The CHAIRMAN. In other words, then, while of course you may have had improvement, it has not been so decidedly marked that you could make an intelligent approximation as to the percentage?

Doctor GALLOWAY. No; we can not figure it out in that way now, although I will say that I believe we can do that later on. It is going in that direction.

The CHAIRMAN. Is your work of such a character that later on, in the course of a year or two, by keeping the proper records and comparing them with the preceding work, you will be able to give a reasonable approximation of the improvement to the Government under that plan?

Doctor GALLOWAY. Yes. One of the fundamental things connected with this proposition is that very fact—that we are keeping track, through our office of records, of the cost of work in the different lines and under different conditions; and the data we are accumulating.

The CHAIRMAN. That, of course, will give you something definite to estimate on?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Do you have a system of rules which governs the efficiency board in getting at these results?

Doctor GALLOWAY. Yes.

The CHAIRMAN. I am inclined to think that it would be a good idea to put that in the record.

Doctor GALLOWAY. I brought the rules along, and can insert them in the record.

The CHAIRMAN. Thank you; we will have them put in, because they will be an object lesson to some other people.

(The papers referred to, and produced by Doctor Galloway, are as follows:)

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF PLANT INDUSTRY,
Washington, D. C., July 1, 1906.

RULES GOVERNING PROMOTIONS OF CLERKS, GARDENERS, MECHANICS, SKILLED LABORERS, AND MESSENGERS IN THE BUREAU OF PLANT INDUSTRY.

In order that promotions in the Bureau of Plant Industry may be made on a strictly merit basis and that the method of determining efficiency ratings and relative standing for clerks, gardeners, mechanics, skilled laborers, and messengers in the Bureau may be systematized, the following rules are hereby promulgated, to take effect immediately, and will govern all future promotions and reductions in the grades mentioned in the Bureau:

I. An efficiency board is hereby appointed, to consist of three members, viz: The assistant chief of bureau, who shall act as chairman; the chief clerk of the bureau, who shall act as secretary; and the assistant in charge of records, who shall act as secretary in the absence of the chief clerk. It shall be the duty of the efficiency board to determine the efficiency rating and relative standing of all employees enumerated above in the bureau, prepare suitable blanks, and call for such information as they may deem necessary with regard to any employee coming within the scope of these rules.

II. Semiannually, on or about November 30 and May 31, the head of each office or laboratory will furnish a report to the efficiency board, on suitable blanks, setting forth in detail his estimate of the standing of each employee in

(Witness: Galloway.)

the grades covered by this order under his immediate supervision, rating qualifications and factors of efficiency on a scale of 100 wherever practicable. These reports should be based on personal knowledge and observation of the employees, should be fair, conservative, and impartial in every particular, and should represent the unbiased judgment of the officer making them.

III. The efficiency board will then examine these statements and determine the efficiency rating and relative standing of each employee among all the employees of the same grade in the bureau. It is recognized that the supervising officers are in the best position to pass upon the merits of individual employees under them, and great weight will be given to their estimates; but if for any reason the efficiency board concludes that the estimates of efficiency submitted by an employee's supervising officer are not strictly correct as compared with the general ratings, such estimates may be disregarded by the efficiency board.

IV. The efficiency reports, together with a summary list showing the relative standing of all employees coming within the scope of this order, as arranged by the efficiency board, will then be submitted to the chief of bureau for approval.

V. When approved by the chief of bureau the efficiency ratings so determined shall remain in force six months and shall govern all promotions within these grades during said period; i. e. the employee who stands No. 1 of his grade will be promoted to any vacancy occurring in the next higher grade, unless he shall have forfeited his right to precedence by some overt act, breach of trust, or neglect of duty in the mean time. No recommendations for promotion will be received or considered for employees covered by this order, except as provided in Paragraph II of these regulations.

VI. As soon as the efficiency ratings are approved by the chief of bureau, each employee will be notified in writing of his rating and relative standing by the secretary of the efficiency board. In case any employee is dissatisfied with his rating he may present a statement in writing, setting forth his reasons therefor, to the efficiency board, whose action upon the same shall be final.

VII. In case of reductions in the force for any reason, such reductions shall invariably be made from the employees whose efficiency ratings and relative standings as determined by the efficiency board are lowest.

VIII. It is to be understood that in case of employees whose rating is less than 80 per cent, unless they show decided improvement during the succeeding six months they will be recommended for reduction in grade. Those whose rating is 70 or less and who fail to secure a rating of more than 70 at the end of the following six months will be recommended for dismissal.

The object of the foregoing rules is to secure uniformity in efficiency ratings and place promotions on a strictly merit basis. In the absence of such a system it has been the practice for the head of each office to recommend for promotion such of his employees as were doing the best work in his own office without regard to the claims of other employees of the same grade in different offices, who may have been doing equally as good or better work and were better qualified and more deserving of promotion in every way. Said system provided no means to systematically determine the relative standing of all employees of the same grade, notifying employees of their relative standing and efficiency rating, or of making promotions automatic.

While the head of an office is undoubtedly in the best position to pass upon the merits of employees under his immediate supervision, he is at the same time unable to make comparisons for the whole bureau. It is believed that much better results will be secured if the head of each office will simply report in the case of each employee under him his estimate of the qualities that go to make up an efficient and satisfactory employee, and then have these estimates rated numerically by a disinterested board of three members.

Efficiency reports will be made upon a suitable form designed to furnish complete data for the information of the efficiency board in determining efficiency ratings for all employees in the grades covered by these rules, and should embody the following features:

(1) A statement by the employee as to his record in the bureau, his prior service in this or other Departments, his training and experience, and his present duties in detail. This will give each employee an opportunity to state what he has done or is doing which makes his services of value to the bureau.

(2) A statement in detail by the head of the office under whom the employee is serving, giving his estimate of the employee with regard to—

(a) Degree of efficiency in performing present duties.

(Witness: Galloway.)

- (b) Ability.
- (c) Capacity for original work or executive duties.
- (d) Adaptability.
- (e) Habits.
- (f) Personality.
- (g) Value of employee.

These captions should be further subdivided for the purpose of securing careful consideration and complete answers with regard to all the elements which enter into the composition of an efficient employee and to avoid the giving of general or perfunctory answers of little value to the efficiency board in determining efficiency and relative standing.

(3) Report of the time clerk relative to annual leave, sick leave, and leave without pay. The ratings on attendance, as shown by the record of the time clerk, will be based on the following considerations: Annual leave for periods of a week or more is granted to enable an employee to take necessary rest or recreation on the ground that his general health and his efficiency and value as a clerk will thereby be improved and increased. Leave is granted for periods of less than a week and fractions of a day to enable employees to meet emergencies not connected with their official duties. However, frequent application for leave of short duration is detrimental to the service, because it involves considerable clerical work in granting and recording same, interrupts the transaction of official business, causes inconvenience, and indicates that the employee has other interests which demand a considerable portion of his time, and the real object of annual leave is defeated.

For the reasons mentioned, where the records show that an employee habitually takes a considerable portion of his leave in short periods without good reason therefor, the efficiency board will make such deduction from his efficiency rating as in their judgment the facts may warrant. With regard to sick leave, it is obvious that the time the employee is absent on sick leave is lost to the bureau. Sick leave is provided for exceptional and meritorious cases only and is granted as a privilege and not as a right. The practice of taking sick leave by some of the employees of the bureau has grown to such an extent as to constitute an abuse. A considerable deduction will therefore be made by the efficiency board from the rating of any employee who is shown by the records to have been on sick leave during the preceding six months, except where in their judgment any deduction would be manifestly unjust, in view of the employee's past record. The same remarks apply to leave without pay. The head of an office in planning his work has a right to assume that the employee will be present for duty continuously, except for annual leave and legal holidays. Absence for any other cause will result in an unequal distribution of the work to other employees, inconvenience to the office, and detracts from the efficiency of the employee, for which a suitable deduction will be made from his rating.

4. The fourth section of the efficiency report will consist of a statement by the efficiency board showing their rating on each qualification of the employee, based on the statements contained in the preceding sections. In determining these ratings the efficiency board will exercise their judgment, giving due weight to the character of the statement.

To secure uniformity and enable comparisons to be made, each qualification will be rated on a scale of 100. As it would be manifestly unjust to give the same weight to each qualification, the following weight factors will be used in determining the average efficiency:

Elements considered.	Weight factor.
Previous departmental service	2
Training and experience	4
Service in the Bureau	4
Capacity for higher grade work	10
Adaptability	10
Efficiency in performing present duties, and ability	40
Habits	10
Personality	10
Sick leave and leave without pay	10
Total	100

(Witness: Galloway.)

The sum of the ratings of each qualification multiplied by its weight factor and divided by 100 will give the average per cent of efficiency, which will be the efficiency rating of the employee, as determined by the efficiency board. All the employees affected will then be listed, according to grades, in the order of their ratings, beginning with the highest, which will show at once the relative standing of each employee among those of the same grade. This list, when approved by the chief of bureau, will not be subject to revision or modification, except as provided in paragraph VI hereof, during the succeeding six months, and shall govern all promotions and reductions until the expiration of that period.

It is believed that the system outlined above will have a marked influence in securing better service throughout the bureau, because no employee will be overlooked, his merits will be carefully considered at stated intervals, and his relative standing and chances for promotion will depend entirely upon his own individual efforts. Certain qualities are given relatively great weight in determining efficiency and standing. Improvement along those lines will secure a higher rating, and the one having the highest rating among those of his grade will invariably be promoted to any vacancy occurring in the next higher grade so long as he maintains his position at the head of the list and does nothing to forfeit his right of precedence. This rule will be strictly adhered to in all cases, and no exceptions will be made for any cause. Employees who fall below the standard fixed in Paragraph VIII hereof will just as surely be recommended for reduction or dismissal, in order to make room for more efficient employees. It must be distinctly understood that advancement or reduction depends entirely upon the quality of the service rendered.

B. T. GALLOWAY,
Chief of Bureau.

Approved:

JAMES WILSON,
Secretary of Agriculture.

EFFICIENCY REPORT.

Name _____ Title _____ Salary: \$ _____.

Record:

Bureau of Plant Industry—

Original appointment: Date _____ Title _____ Salary _____.

Changes in grade _____

Service in other Departments prior to appointment in the Bureau of Plant Industry _____

Training and experience prior to entering Government service (character of training, compensation, etc.) _____

Present duties in detail _____

Date _____ (Signature.) _____

(Above blanks to be filled in by employee.)

(Following blanks to be filled in by head of office, laboratory, or supervising officer. Grade on scale of 100, as indicated, and assume that 90 per cent is a fair average. Printed numbers indicate the highest possible number of points that can be given for any subject. Employees whose general average falls below 80 and who fail to improve will be recommended for reduction. Those whose average falls below 70 and who fail to improve will be recommended for dismissal.)

(I) Efficiency and deportment:

(1) Efficiency in performing present duties (mark one only of the following lines)—

(a) Clerical work (amount 50, quality 50) _____ 100 _____

(b) Stenographic work (accuracy 30, speed 20) and typewriting (accuracy 20, neatness 15, speed 15) _____ 100 _____

(c) Clerk, stenographer, and typewriter (accuracy, 40; neatness, 30; speed, 30) _____ 100 _____

(d) Artist, photographer, gardener, carpenter, painter, plumber, fireman, messenger, watchman, or skilled laborer (amount, 50; quality, 50) _____ 100 _____

(Witness: Galloway.)

(I) Efficiency and deportment—Continued.

- (2) Deportment (mark all of the following)—
- | | | |
|---|----|-------|
| (a) Is employee habitually punctual?----- | 10 | ----- |
| (b) Is employee trustworthy?----- | 10 | ----- |
| (c) Is employee absent from desk during office hours (frequently, occasionally, or sometimes) to the neglect of official duties?----- | 15 | ----- |
| (d) Does employee voluntarily remain after office hours when necessary to prevent work from falling in arrears?----- | 20 | ----- |
| (e) Is employee habitually industrious (10), prompt (5), -----; subordinate (5), -----; conscientious (5), -----; cheerful (5), -----; zealous (5), -----; neat (5), -----; faithful (5), ----- | 45 | ----- |
| Does employee smoke cigarettes?----- | | |
| Does employee habitually use intoxicants?----- | | |

(NOTE.—A deduction of 40 will be made from the average on deportment of any employee who is reported as smoking cigarettes or using intoxicants.)

(II) Utility and ability:

- (3) Capacity for original work or executive duties (i. e. ability to accomplish results without constant supervision or direction)—
- | | | |
|---|-----|-------|
| (a) Character of duties----- | | |
| (b) Degree of capacity for such duties----- | 100 | ----- |
- (4) Adaptability—
- | | | |
|--|----|-------|
| (a) Capacity of employee to readily perceive what is wanted, devise methods, adapt means to ends, adopt suggestions, and execute the directions of others--- | 50 | ----- |
| (b) Ability to take up entirely new work and perform it intelligently and satisfactorily----- | 50 | ----- |

(III) Estimate of employee's value:

- (a) Are employee's services entirely satisfactory to his superiors in his present situation?-----
- (b) If not satisfactory, in what respect?-----
- (c) Would employee be likely to render better or more efficient service if given other work or transferred to another office?----- If so, what work or office?-----
- (d) Is general health of employee good, fair, or poor?-----
- (e) Has employee performed any special service during the past six months which would tend to distinguish him from others of his class?----- If so, what service?-----
- (f) Is employee deserving of promotion?-----
- (g) Has anything occurred during the past six months which would detract from employee's efficiency and should be considered in determining his present rating?----- If so, what?-----
- (h) In your opinion what could employee do to make his services more valuable or satisfactory in his present position?-----
- (i) Is employee likely to improve in general efficiency?-----
- (j) Is employee's efficiency likely to decline in the near future for any cause (e. g., age, ill health, habits, etc.)?----- If so, for what cause?-----
- (k) In your judgment, what are the services now performed by employee worth, as compared with others performing like service in the Bureau?-----
- (l) What, in your judgment, would his services be worth if given other duties or transferred to another office of the Bureau involving increase of work or responsibility which employee is capable of performing? Name the duties or the office.-----

Remarks-----

(Signature)-----

Date----- (Title)-----

(Witness: Galloway.)

[To be filled in by time clerk.]

Attendance:

(1) Number of applications for leave during past six months made by employee for periods of—

- (a) Less than one day.....
- (b) More than one day but less than a week.....

(c) Total number of applications for leave.....

Attendance—Continued.

(2) Number of days absent on annual leave with pay during past six months.....

(3) Number of applications for sick leave.....

(4) Total number of days absent on sick leave.....

(5) Number of days absent without pay.....

Date..... (Signature).....

[To be filled in by efficiency board.]

Qualifications.	Ratings based on preceding reports.	Weight as factor.	Total number of points.
(1) Record of service in the Bureau		4	
(2) Training and experience, including previous departmental service		6	
(3) Efficiency in performance of present duties		30	
(4) Department		10	
(5) Capacity for higher-grade work		20	
(6) Adaptability		20	
(7) Sick leave and leave without pay		10	
Total weights and points.....		100	

General average (total number of points divided by 100, showing efficiency on scale of 100).....

Relative standing among..... employees of class..... on above rating

Remarks

Efficiency Board.

Date.....

NOTIFICATION OF EFFICIENCY RATING AND RELATIVE STANDING.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF PLANT INDUSTRY,
Washington, D. C.,, 190...

In accordance with the provisions of Paragraph VI of the Rules Governing Promotions and Efficiency Ratings in the Bureau of Plant Industry, promulgated July 1, 1906, you are advised that your efficiency rating for the six months ended, 190..., is, and your relative standing is, among, employees of your grade.

By direction of the Chief of Bureau:

Secretary Efficiency Board.

(Witness: Galloway.)

Qualifications.	Ratings.	Weight as factor.	Total number of points.
(1) Record of service in the Bureau	4	.....
(2) Previous departmental service	2	.....
(3) Training and experience	4	.....
(4) Efficiency in performance of present duties	20	.....
(5) Ability	20	.....
(6) Capacity for higher grade work	10	.....
(7) Adaptability	10	.....
(8) Habits	10	.....
(9) Personality	10	.....
(10) Sick leave and leave without pay	10	.....
Total weights and points
General average on scale of 100

The CHAIRMAN. Now, as you have explained that in very satisfactory detail, will you be kind enough to state in your own way, taking these various classes of clerks that you have, the difference in their duties, if there is any? You have already spoken about efficiency, but I wish you would state the difference in the duties that are performed by your various clerks in the various classes, beginning with your \$600 class and then going right up through, if you please, taking each class—\$720, \$840, and so on.

Doctor GALLOWAY. I might, Mr. Chairman, before taking that up, make a statement here that I think has not been made before, and call your attention to something that has perhaps attracted your attention, and that is the great number of low-salaried clerks that the Department of Agriculture has on its rolls—these \$600 people.

The CHAIRMAN. Yes.

Doctor GALLOWAY. That is explainable from the fact that for a number of years the Department appointed help under the general name of "laborers." They were appointed without examination. Some of those people have been in the Department for twenty-five years, and were in the Department as laborers until three or four years ago, when they were all blanketed in under the general term of "clerks," but their salaries were not changed. They went on the roll then as clerks at \$600, because that was the maximum salary a laborer could be paid. Since that act of Congress there have been other similar acts putting these people into the classified service, or allowing them to go in through examinations, so that we now have most of them in, not by blanket, but by noncompetitive examinations, taken after they were transferred from the laborers' roll to the clerks' roll. So that a considerable portion of these people in the Bureau of Plant Industry who are down on the rolls as \$600 clerks are still doing the class of work that they did as laborers. They are counting franks; they are assorting franks into groups; they may be putting up packages of seed, or arranging the packets in which the seeds are to be put up, and doing work of that kind. It is a class of work that is more in the nature of skilled labor than it is in the nature of clerical work.

The CHAIRMAN. Putting up packages and assorting franks in that way is not a very highly developed character of skilled labor, is it?

Doctor GALLOWAY. Yes, sir—that is, counting the franks is. A Member of Congress, for instance, might properly find fault if we reported back that he had submitted 5,000 more franks than he had seed to send out. The question of accuracy of count amounts to something.

(Witness: Galloway.)

The CHAIRMAN. Yes; that is true.

Doctor GALLOWAY. The leader of that work is an expert money counter from the Treasury Department, because we must be absolutely correct in the number of franks that we count and handle, and we handle in the neighborhood of between 10,000,000 and 15,000,000 every year. They all have to be counted and double counted, so that that requires a considerable force of this cheaper grade of clerks.

The next grade, \$720, and the \$840 grade are differentiated in this way: We may have a clerk at \$840 or \$900 who is a fairly good stenographer, who can do the purely manual work, but who can not be depended upon to initiate anything, or the clerk may do plain copying only.

The CHAIRMAN. Do your \$720 and \$840 men do practically the same work that the \$600 man did?

Doctor GALLOWAY. No, sir; not always. In some cases they do.

The CHAIRMAN. In the cases where they do where do you get your differentiation, then? Is the higher-paid man able to accomplish more of the same work?

Doctor GALLOWAY. He may be able to accomplish more; and an element that may enter in there is the time that that clerk spends at his work or her work. The clerk may be absent a good deal, or may habitually take sixty days' leave, i. e., make a regular thing of it. We always look up this point in the handling of the promotions of clerks.

The CHAIRMAN. Now, go right on with your other classes.

Doctor GALLOWAY. Going up into the higher classes, the \$900 and \$1,000 clerks, we have clerks there who not only do stenographic work and copying, but are responsible for the handling of letters, the copying of letters, seeing that the letters and matters that go with letters are properly coordinated, that they go out properly; the indexing of letters, the filing of letters, and such work.

Then we get into the \$1,200 field. We may have clerks who are expert stenographers, and are stenographers simply as such, but they are not people that we can turn over work to and have them go ahead with it and finish it without supervision.

In the next grade, of \$1,400 clerks, we have men and women who are not only capable of taking up work that is laid out for them, but have initiative, and can carry a problem to a finish. The same is true of the \$1,600 clerks, only there the question of the initiative is largely with the clerk himself or herself, and those clerks are not only able to act as clerks, but are really executive assistants.

The same is true with the four \$1,800 positions that we have. They are all filled by men who, with one exception, are really executive assistants, or executive clerks. The man who is in charge of our office of records, who handles all of our accounts, who sees that the laws governing the expenditures of money are properly complied with, who puts his vouchers in shape for turning them over to the disbursing office for review, who acquaints every officer in the Bureau who is responsible for the expenditure of money with the amounts that he is expending, and how far he is ahead or behind his allotments, and who goes further in comparing all requisitions with the contracts and attends to all that sort of work—that

(Witness: Galloway.)

is Mr. Estabrook—is one of the \$1,800 men that are mentioned there. We have four such men.

The CHAIRMAN. Four \$1,800 men?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Does the element of increased compensation after a considerable length of employment with the Department, as being necessary to induce men to enter the service, enter to any extent into these prices, or into the sums paid the clerks in these various classes?

Doctor GALLOWAY. Yes; I think it does.

The CHAIRMAN. To what extent would you say? Is it a factor of consequence, or is it a minor factor?

Doctor GALLOWAY. It is a minor factor. I am not concerned with the question of getting these lower-grade clerks, up to \$1,200.

The CHAIRMAN. You say that you are not concerned? You mean by that that you do not have any trouble in getting them?

Doctor GALLOWAY. No; we do not have trouble in getting them. It is the few men that are at the top of the ladder that we have trouble in getting, and some trouble in holding.

The CHAIRMAN. You have not any trouble in getting eligibles for your lower clerkships?

Doctor GALLOWAY. No.

The CHAIRMAN. From the civil-service examinations?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. I do not know whether or not you know whether there are a large number that are waiting for examination?

Doctor GALLOWAY. Yes; I know there are.

The CHAIRMAN. There are a great many waiting all the while. The only trouble you have is in the higher classes?

Doctor GALLOWAY. Yes. When I ask for a certification of clerks, and mention anything a little out of the ordinary, special qualifications, we always have difficulty in getting such a clerk. I have in mind a case where, a few days ago, we asked for a clerk having special qualifications in the matter of languages. We wanted a man who was familiar with certain languages in connection with some of our foreign work; and we have not gotten such a man yet, and will probably have to have a special examination to get him.

The CHAIRMAN. What would be his rate of salary?

Doctor GALLOWAY. This man would be paid about \$1,400 or \$1,500. We would start him in at that rate.

The CHAIRMAN. That would not be necessarily involved in the proposition of a larger salary after the lapse of a long period of time as an inducement to enter. It would rather complicate it, would it not?

Doctor GALLOWAY. The fact of the matter is that a clerk of that kind, who has taken up a special field, has always an inducement, for the reason that in those special fields there are usually more opportunities for advancement than in the purely routine grades.

The CHAIRMAN. Yes; in the ordinary work.

Doctor GALLOWAY. This particular clerk I mentioned a while ago as doing this work and being in charge of this office of records came to us as a stenographer at \$1,000 four years ago. But he is a man that reads and speaks three or four languages, has remarkable ability in the matter of handling records, and is a man whom we can send

(Witnesses: Galloway, Zappone.)

out into the field for special investigations, and who has gone into the field on work of this kind and always gives us a most valuable report.

The CHAIRMAN. What can you say about the compensation that men receive in the Department in the grades under, say, \$1,400, as compared with men who render like service in a clerical capacity in private life?

Doctor GALLOWAY. I think it is high. I mean I think that, as compared with the salaries paid for the same kind of work outside of Government employ, the salaries that are paid to the lower-grade clerks for the work that they do for the Government are high. Is that the question?

The CHAIRMAN. They are high?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. That is to say, your judgment is that from \$1,400 down the Government is paying rather more than would be paid for the same men doing the same work in private employment?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. That is what I wanted to do, to get your idea. Can you give any approximate percentage of the amount the Government pays more than is paid in private employment?

Doctor GALLOWAY. I do not think I can express it in percentages. It is something that can be done, though, by—

The CHAIRMAN. By an accurate investigation?

Doctor GALLOWAY. Yes. I should say the excess is from 20 to 25 per cent.

The CHAIRMAN. In those grades the Government is paying from 20 to 25 per cent more than private individuals pay for the same work?

Doctor GALLOWAY. Yes, sir. Understand me that there are clerks who ought to be paid more.

The CHAIRMAN. Oh, of course.

Doctor GALLOWAY. But there are a great many that ought to be paid less.

The CHAIRMAN. You mean taking the service as a whole?

Doctor GALLOWAY. Yes.

The CHAIRMAN. You do not think that would apply to the clerks above the \$1,400 grade, as a whole?

Doctor GALLOWAY. As a whole, it would not; but it would apply to the minor grades. It would apply, of course, to some of the others.

The CHAIRMAN. You have a very much fewer number from \$1,400 up, of course, than from \$1,400 down?

Doctor GALLOWAY. Yes.

Mr. ZAPPONE. You refer more especially to the statutory roll, do you not?

Doctor GALLOWAY. Yes; I refer particularly to the statutory roll.

Mr. ZAPPONE. I wanted to have you differentiate between the two.

Doctor GALLOWAY. My own opinion is that the statutory roll, as far as the Government is concerned, is one of the greatest hindrances to efficient service and proper compensation that we have. No private business could conduct its work and depend on fixed rates of compensation such as the Government is required to do.

(Witness: Galloway.)

The CHAIRMAN. Do not the Departments undertake to meet that situation by their system of promotions from time to time?

Doctor GALLOWAY. It can not be met by that.

The CHAIRMAN. It can not?

Doctor GALLOWAY. It can not.

The CHAIRMAN. I would like you to explain the whole situation from that point of view right now, and give your reasons why these statutory salaries for clerks fixed by the Government embarrass the Government and make Government work more expensive than private work of the same character. That is the proposition, is it not?

Doctor GALLOWAY. Yes, sir; in part. In the first place, the Congress fixes specifically and definitely the salary of a clerk, and unless there is a vacancy, caused by death or resignation, the executive officer has absolutely no power to make any change. Such being the case, it frequently happens that there is a vacancy in a \$1,400 place and there is no eligible man to fill it. What is done? The place is filled by some one of the lower grade, in order not to lose the place. That is done right along.

The CHAIRMAN. It being more or less for a laudable purpose, of course—to exhaust the surplus?

Doctor GALLOWAY. Yes; in other words, not to let the money go back into the Treasury, and to utilize the places.

The CHAIRMAN. They do not propose to leave any \$1,400 salary positions lying around loose?

Doctor GALLOWAY. No, sir. That is one way of looking at it.

The CHAIRMAN. To what particular salaries in the Department of Agriculture, for instance, does that criticism apply? All of the statutory salaries?

Doctor GALLOWAY. Primarily all of the clerical statutory salaries, with the possible exception of those that are fixed so high that there are no eligibles to move into them.

The CHAIRMAN. Yes; exactly. That, of course, stops it, because it does not open any other door. You can not go through any other door because there is not any. And that suggestion of course applies to the Departments generally as well as to the Department of Agriculture?

Doctor GALLOWAY. Oh, yes; I am not speaking now of the Department of Agriculture—

The CHAIRMAN. You are speaking of the Government service as a general proposition?

Doctor GALLOWAY. I would like to say that this is a subject I am charged with by the Keep Commission to investigate, namely, the operation of statutory and lump-fund salaries in so far as the efficiency of the work of the Government is concerned.

The CHAIRMAN. See if I get your idea as we go on, because I want you to go into this fully, so that I may get your ideas about it. Under the system of statutory salaries, are we to understand that an efficiency board, like this that you have described, could not bring about the results that you have spoken of?

Doctor GALLOWAY. The work of the efficiency board relates to the statutory salaries only. It does not relate to any other salaries except the statutory salaries.

(Witness: Galloway.)

The CHAIRMAN. Then why can not they promote or reduce as the efficiency records show is necessary?

Doctor GALLOWAY. The efficiency board can only act when there is a vacancy caused by resignation, transfer, or death. If the matter of the salary was not statutory, but was left within the power of the executive officer, he could change the salary at once.

The CHAIRMAN. In other words, is this it? We will say there are a dozen salaries in some one bureau—take your Bureau, for instance, just for purposes of illustration—where the statute fixes the salaries of, say, a dozen clerks at \$1,400. If there is a death in that class the tendency is, under the system of statutory salaries, simply to promote a man in that class, whether there happens to be one qualified or not, so as to have a clerk drawing that \$1,400 salary?

Doctor GALLOWAY. That may be the case where the number of clerks is limited; but of course that was one of the reasons for establishing these efficiency grades, moving the whole line up. The whole line would move up in that case.

The CHAIRMAN. Yes; one man would move up all the way down.

Doctor GALLOWAY. All the way down.

The CHAIRMAN. But is it necessary, under the law, when there is a vacancy under those circumstances to have it filled?

Doctor GALLOWAY. Not necessarily.

The CHAIRMAN. Unless the efficiency of the service requires it?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. But as a matter of fact it is filled?

Doctor GALLOWAY. It is filled, as a rule. Of course when there is a standing list that has been made up on efficiency the point that I made, as to the practice of filling the place simply because you do not want the money to go back, does not hold so readily.

The CHAIRMAN. Yes. Of course if you have a man that is qualified to go up into the upper grade and who is able to do the work and does do the work, and therefore ought to receive the pay, there is no criticism on promoting him?

Doctor GALLOWAY. No criticism; no, sir.

The CHAIRMAN. But that involves, you say, under the existing system, the promotion of the man right below him in each grade?

Doctor GALLOWAY. Yes; and that further goes back and involves the absolute necessity of having a list of candidates whose efficiency has been determined definitely in advance. Some of these men may have to wait a year or two years or longer for the time to come when they can be moved up.

The CHAIRMAN. What is the difference between that and the lump-sum proposition?

Doctor GALLOWAY. The lump-sum proposition would simply mean that if, in the judgment of an executive officer, all clerks below \$1,400 were drawing 20 per cent more than they could get outside, he could at one order make effective a reduction of that amount.

The CHAIRMAN. Yes. The only way in which he can do it under the existing system, where the salaries and the number of clerks are fixed by the statute, is by simply reducing the men to the lower classes?

Doctor GALLOWAY. Yes, sir; and that is only done in a case here and there.

The CHAIRMAN. If the statute simply fixed the class, that would not amount to a very great deal, I suppose, if it did not fix the number of men in the class, would it?

Mr. ZAPPONE. You would have to name the number to get the total amount necessary to appropriate.

Doctor GALLOWAY. If the statute simply named the class or named the number, we would not be any better off than we are now.

The CHAIRMAN. That is just what they do do now, is it not? But it is necessary to name the number in order to make the fixing of the class effective?

Doctor GALLOWAY. Yes; in the statutory salaries. But if the funds were appropriated as lump funds, and then certain restrictions were placed around those funds requiring the executive officer to make proper reports each year as to the manner in which he has handled those funds, it seems to me that the end in view would be secured, viz, the unification of clerical salaries in the Government and the placing of them on a basis of what similar work would command outside.

The CHAIRMAN. This is a subject that you have been investigating under the Keep Commission?

Doctor GALLOWAY. Yes, sir. I have not yet reported on it, and I am not ready to report.

The CHAIRMAN. So that you would not be prepared to make any statement here of the definite plan that you have worked out?

Doctor GALLOWAY. No. I have in my mind certain general propositions that I am considering, as we are not ready to report until certain of the other committees report who have the question of salaries of clerks under direct consideration.

The CHAIRMAN. Is it your judgment that under the existing method the Government is paying quite a percentage more for the services rendered to it than it ought to pay and would pay under a properly managed service?

Doctor GALLOWAY. I believe it is. That is my judgment.

Mr. ZAPPONE. Mr. Chairman, there is one point in regard to the lump-sum salaries that I would like to mention. Doctor Galloway spoke of a vacancy occurring on the statutory rolls, and said that when such a vacancy occurred it was customary to promote a man from the grade below. On the other hand, if a vacancy occurred on the lump-fund roll, the head of the Bureau, if he had no available material in the grade below, no one that he wished to promote, would simply not fill it at all. That money goes back to the credit of his general fund and is available for miscellaneous expenses. He is not compelled under the law to fill a vacancy on a lump-sum roll, as you might say is the case with a statutory roll.

The CHAIRMAN. This is the idea: Suppose the salary is \$1,800. Under the statutory proposition, if a man is not appointed to that position to do the work the money lapses back into the Treasury?

Mr. ZAPPONE. Yes, sir; it must, under the law.

The CHAIRMAN. Under the lump-fund proposition he has that \$1,800 for the general uses of his Bureau?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. For cheaper clerks or for any purpose that he can legitimately use it under the appropriation?

(Witnesses: Galloway, Zappone.)

Mr. ZAPPONE. Precisely.

The CHAIRMAN. In other words, his Bureau is \$1,800 minus under the statutory proposition?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. And if he appoints a man there that can only earn \$1,400, his Bureau is getting the benefit of at least \$1,400, while the Government may be losing the extra \$200 or \$400, as the case may be?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. But with the lump sum his Bureau would be getting, in some other feature or branch, the benefit of the whole \$1,800?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. That is it, is it?

Doctor GALLOWAY. Yes, sir.

Mr. ZAPPONE. Or he may appoint two clerks at \$900 each instead of one at \$1,800.

The CHAIRMAN. Yes; he can pursue any course he likes that will properly utilize this \$1,800 under the lump-fund proposition.

Mr. ZAPPONE. That is the idea exactly.

The CHAIRMAN. But under the statutory proposition his Department loses it altogether unless he has it paid to a clerk.

Doctor GALLOWAY. A case in point, which happened a few months ago. An expert, a scientific man, who was getting a salary of \$3,000, resigned, and we had no man to put in his place, and we filled it with an assistant at \$1,800. The rest of that money was turned into the general fund for the investigation of the particular scientific work that the \$3,000 man had been carrying on. We had, Mr. Chairman, a long discussion on this question two years ago before the Agricultural Committee of the House, and at that time we finally decided upon an arbitrary division between lump-fund and statutory positions, and we placed all of the scientific men on lump funds and all the clerical force on statutory salaries, and drew the line sharply.

The CHAIRMAN. Have you kept any accounts in the Department of Agriculture for the purpose of comparing the work done under the new system with the work done under former systems, with reference to determining the relative efficiency of the results produced under the two?

Doctor GALLOWAY. That is one of the lines of work that, as a member of the subcommittee, I am getting together. I am collecting those data, not only for use in our Department, but for other Departments where lump funds are used extensively for paying salaries. I am trying to get at some method of determining the unit of cost of similar kinds of work done under the two systems.

The CHAIRMAN. Yes; but you have not reached results as yet?

Doctor GALLOWAY. No, sir; I have not worked the thing out.

Mr. SAMUEL. Do you find that the civil-service law embarrasses you in any way?

Doctor GALLOWAY. No; that does not embarrass us at all.

Mr. ZAPPONE. It might be proper to add here that the total amount paid for statutory salaries in the fiscal year 1906 in the Department of Agriculture was \$982,000, and the total amount paid for lump-fund salaries was \$3,500,000, showing the sentiment of Congress in regard to the lump funds as compared with the statutory funds. They know that better use can be made of money appropriated in a

(Witnesses: Galloway, Zappone.)

lump sum for salaries; it will go farther. If there is any desire on the part of this committee to correct the matter of statutory salaries in the Department of Agriculture it will mean that the amount involved it about \$982,000.

Mr. SAMUEL. Your idea is that all salaries in the Department of Agriculture ought to be put under the lump fund?

Doctor GALLOWAY. That is the idea, in my judgment.

The CHAIRMAN. Have you separated here in this list of expenditures the work done in Washington and the work done outside?

Mr. ZAPPONE. As regards what, sir—miscellaneous expenses?

The CHAIRMAN. As regards salaries.

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Where is that?

Mr. ZAPPONE. To what particular appropriation did you wish to refer?

The CHAIRMAN. This one right here—plant industry.

Mr. ZAPPONE. Take the vegetable and pathological appropriation, Doctor Galloway; that would be a good one, would it not?

The CHAIRMAN. No; I want first to take the whole appropriation; the whole expenditures by Doctor Galloway.

Mr. ZAPPONE. Turn to page 148. You will find, under the summary, that the total amount paid for lump-fund salaries in the Bureau of Plant Industry in Washington is \$172,000, in round numbers. The total amount paid by that Bureau for lump-sum salaries outside of Washington is \$168,000 in round numbers.

The CHAIRMAN. Yes. Now, for statutory salaries you spent \$154,000?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Where are those employees located?

Doctor GALLOWAY. They are located both in and outside of Washington; mainly inside.

The CHAIRMAN. Mainly inside?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And then miscellaneous supplies, etc., an item of \$556,000. Where is that mainly expended—in Washington?

Doctor GALLOWAY. That is expended both in and out of Washington, but mainly in Washington.

The CHAIRMAN. Do you have any experimental departmental work going on outside of Washington?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Under what circumstances, and to what extent?

Doctor GALLOWAY. We have work in one or two places in California; we have work in Florida, and considerable work in cooperation with the experiment stations, for which we contribute certain funds. The work in California is in connection with our introduction and dissemination of useful plants. We are using the California garden at Chico as a propagating and receiving ground for the introductions that we get, mostly from the Orient, and after they are propagated and grown for a number of years they are distributed from that point. At Miami, Fla., we have also a garden, which has for its object the growing and dissemination of semitropical products—products useful for the southern portions of the United States—and where we study diseases of the crops of the southern por-

(Witness: Galloway.)

tion of the United States. At St. Louis we have what we call a Mississippi Valley laboratory, where we are carrying on investigations in timber diseases, such as the rots which cause the destruction of building material, railroad ties, telegraph poles, and so on, and the methods of treatment. Those are the three outlying stations where we are doing most of our work, and, in addition, we have cooperative work going on, to a minor extent, with practically all of the 45 or 50 experiment stations.

The CHAIRMAN. Is your principal laboratory and investigating work going on here in Washington?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. So far as your experimental work connected with plants, trees, shrubs, etc., is concerned, it necessarily has to be conducted outside, I suppose?

Doctor GALLOWAY. In the field; yes.

The CHAIRMAN. In the field?

Doctor GALLOWAY. Yes. Take, for example, our breeding work—the work of developing new crops by breeding. That is all done in the field—the corn in the corn region, the cotton in the cotton region, and so on.

The CHAIRMAN. How long has the Department been engaged in the development of breeding of plants?

Doctor GALLOWAY. About twelve years.

The CHAIRMAN. Is this the same line of development that Burbank is engaged in?

Doctor GALLOWAY. The same line, but not the same work. Burbank is developing his work along certain lines. We are applying the best scientific knowledge and methods to our work, and have originated and disseminated some very important and valuable things.

The CHAIRMAN. Of what kind?

Doctor GALLOWAY. Take, for instance, the new hardy oranges which we are sending out, developed since the big freeze of 1898; new cottons which are being distributed all over the South; new varieties of corn and wheat, and various other cereals. A special feature of our work for the last two years has been in developing types of cotton, by breeding and selection, which can be grown in the regions that the boll weevil has invaded, and which will mature so early that the boll weevil can not destroy the entire crop.

The CHAIRMAN. By the way, what about the boll weevil? What has been done in connection with that individual?

Doctor GALLOWAY. The boll-weevil work, so far as it appertains to the Bureau of Plant Industry, has been divided into three or four separate groups. We are breeding early cotton, cotton that will mature early enough to develop a crop despite the weevil. We are carrying on extensive propaganda work directly with farmers. That I consider one of the most valuable features of our work. That work is carried on right in the boll-weevil section and, briefly, consists of getting an individual farmer to take a portion of his land and devote it to methods we outline and suggest to him, and to do it in such a way that he can compare the results obtained by the methods that are suggested to him with his own methods. We are now in direct contact and cooperation with about 100,000 farmers working in that way.

(Witness: Galloway.)

The CHAIRMAN. And for what purpose?

Doctor GALLOWAY. Mainly to show the farmer that he can grow cotton despite the weevil.

The CHAIRMAN. That will be immune from the weevil?

Doctor GALLOWAY. No, sir; not necessarily immune, because we have not yet found an immune cotton; but that there are cultural methods and cultural conditions and kinds of varieties and methods of handling his crop that will practically make the farmer immune to the losses caused by the weevil.

The CHAIRMAN. Yes. Does the method of cultivation you have developed absolutely eliminate danger from the weevil?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. Or practically so?

Doctor GALLOWAY. It simply makes it impracticable for the weevil to do any serious harm; but the weevil is there, just as abundant as ever.

The CHAIRMAN. Yes; but the method that you have adopted is such as in a large degree eliminates the weevil as a serious factor?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. How long have you been engaged in that investigation?

Doctor GALLOWAY. This is the fourth year that we have been engaged in it.

The CHAIRMAN. What does it cost?

Doctor GALLOWAY. We expend \$105,000 on that work each year—not on this particular work, but on the whole work under the three or four headings that we carry on; that is, the breeding—the demonstration work as we call it, the cooperation with experiment stations and farmers' institutes in general propaganda work, and improved systems of farm management, which is another feature of the work. In addition to the growing of cotton we are trying to teach the farmers to diversify as well as grow cotton. That is one of the features of the work.

The CHAIRMAN. Just take this report of expenditures and take, for instance, this year, when you have expended \$105,000. I want to use this for illustration. Take that and give me the various sums, the various aggregates—for instance, a certain sum for salaries, and so on; the various elements of expenditure that enter into the aggregate of \$105,000.

Doctor GALLOWAY. Yes, sir. I may say, Mr. Chairman, that we have our work so planned and so organized that each group represents a project or problem; and then we group those projects or problems under different heads and divide up the expenditure in detail under each respective group.

The CHAIRMAN. Yes.

Doctor GALLOWAY. I have here a table which shows the whole expenditure of the Bureau under the main heads, and then refers to the details under each one of these separate heads. Now, under "boll weevil" I will see what we have expended.

The Bureau work on the boll weevil was divided into four groups—diversification of crops, improved cultural conditions, breeding new cottons, and studies of the diseases of cotton—aggregating \$105,000. We spent for the diversification of crops the sum of \$20,691.67.

(Witnesses: Galloway, Zappone.)

The CHAIRMAN. That last item is in the diversification of crops, you say?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. How was that sum expended?

Doctor GALLOWAY. That was expended as follows: For salaries, \$11,070; for traveling expenses expenses, \$6,560, and for miscellaneous expenses, including general supplies, \$3,061.67; making a total of \$20,691.67.

The CHAIRMAN. And that work was done by men mainly in the field, I suppose?

Doctor GALLOWAY. Men mainly in the field; yes, sir.

The CHAIRMAN. But not wholly in the field.

Doctor GALLOWAY. Not wholly in the field, because in the case of farm management investigations our headquarters are here in Washington.

The CHAIRMAN. And you charge off a certain proportion of the expense of that branch of the work here to that particular project?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And that is included in the term "salaries?"

Doctor GALLOWAY. That is included in the term "salaries."

The CHAIRMAN. Now let us have your next element.

Doctor GALLOWAY. In the next element we have a test farm at San Antonio, Tex., here we are carrying on investigations; and that comes under the second general head. At that farm we are expending \$4,500.

The CHAIRMAN. Where does that appear in your list of expenditures?

Mr. ZAPPONE. Doctor Galloway, are you reading from the year 1907 or 1906? We are dealing with 1906, and I think you are dealing with 1907.

Doctor GALLOWAY. Oh, yes! I beg pardon.

Mr. ZAPPONE. I wish you would go back to 1906, Doctor Galloway, if you please. The amount set aside for your Bureau for this work is practically the same, \$105,000 in round numbers, and your projects under that are enumerated.

Doctor GALLOWAY. Yes.

Mr. ZAPPONE. And that is what Mr. Littlefield is following.

The CHAIRMAN. Let me just inquire whether this sum that we have here in our list of expenditures covers the boll-weevil proposition. First, breeding and selection, \$24,469.37?

Mr. ZAPPONE. That is not the first item. There is one above that designated "cooperative demonstration farm work."

The CHAIRMAN. On the top of page 164?

Doctor GALLOWAY. Yes, sir; that is the farmers' cooperative demonstration work. That is \$40,000.

The CHAIRMAN. The amount expended is \$37,677.80?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And the next item is breeding and selection, under which the amount expended is \$24,469.37?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. The next is cotton diseases?

Doctor GALLOWAY. Cotton diseases, principally wilt. That is a

disease that occurs in the same region where the weevil occurs, and we are studying that in connection with the weevil work.

The CHAIRMAN. So that that involves both of those things under that head, does it?

Doctor GALLOWAY. Yes.

The CHAIRMAN. The weevil and wilt?

Doctor GALLOWAY. This particular sum of \$3,589.51 was expended entirely for the cotton wilt.

The CHAIRMAN. Then it does not come in the boll-weevil proposition?

Doctor GALLOWAY. But it is a part of that appropriation, because we were authorized to study not only the weevil, but cotton diseases as well.

The CHAIRMAN. In the same appropriation?

Doctor GALLOWAY. In the same appropriation; yes, sir.

The CHAIRMAN. So that while that is not cotton boll-weevil work per se, it is included in the same appropriation to authorize the investigation of the cotton boll weevil?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Then "cotton diseases. root rot"—that is the same thing, I suppose?

Doctor GALLOWAY. That is the same thing; yes, sir.

The CHAIRMAN. That is \$5,000. Then "cotton boll weevil investigations, introduction of new crops, and diversification of crops"—that is the same thing?

Doctor GALLOWAY. That is the same thing.

The CHAIRMAN. "Diversification farms"—that is also the boll weevil, is it?

Doctor GALLOWAY. That is also the boll weevil.

The CHAIRMAN. Then everything on page 166 is boll weevil also?

Mr. GALLOWAY. Yes, sir.

The CHAIRMAN. Have you footed those up to see what they would amount to?

Mr. ZAPPONE. They will not necessarily total \$105,000. These items are merely the principal projects. The total does not agree with the total appropriation in every case.

The CHAIRMAN. Well, let us figure this one up and see.

Mr. ZAPPONE. It may in some cases; but I told the various bureaus that your idea was to get the principal projects; something that you could take up and discuss.

The CHAIRMAN. Yes; that is right. I just want to see how much these come to, if you will figure that up.

Mr. ZAPPONE. Yes, sir. [Making calculation.]

The CHAIRMAN. Were the expenditures that we find set out on pages 164 to 166, inclusive, as being approximately the aggregate of expenditures in connection with the boll-weevil proposition all made under and charged to your appropriation of \$105,000 for the boll weevil?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. I got the impression that some of these items were portions of the expenditures of a whole bureau and were not in the first instance charged, per se, to this appropriation, but were esti-

(Witnesses: Galloway, Zappone.)

mated as the amount probably used in this expenditure, and therefore charged to it as a matter of bookkeeping. I was wrong about that?

Doctor GALLOWAY. No; we make the direct charge. For instance, where we have a man that is doing plant-breeding work and has been engaged in plant-breeding work in the Bureau proper and this problem of plant breeding comes up and we turn him over to the boll-weevil proposition, his salary will go on for a time on the cotton boll-weevil fund while he is working on the cotton boll-weevil proposition.

The CHAIRMAN. So that while he is at work on the boll weevil, as his salary is drawn from time to time it is charged under that appropriation?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. So that all the expenses connected with the boll-weevil proposition have been in the first instance, as a matter of expenditure and disbursement, made a charge upon the boll-weevil appropriation?

Doctor GALLOWAY. Yes; and all these expenses that are enumerated in detail here—for instance, all these salaries under farmers' cooperative demonstration work—every one of those individuals is working in that particular case for the boll-weevil matter and no other.

The CHAIRMAN. Yes. In the case of "cotton diseases, wilt," that work is done under that appropriation?

Doctor GALLOWAY. Yes. Take the cases of wilt. We have several salaries there. For instance, Mr. William A. Orton, assistant pathologist, is down there for \$900. His salary is \$2,000. He is working half of the time on the boll weevil and half of the time in the regular pathological work on cotton—that is, his province is about equally divided between work on the boll weevil and regular diseases of cotton.

The CHAIRMAN. So that you draw part of his salary upon one appropriation and part upon the other?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Do you mean that the work he is doing at one and the same time is partly for the benefit of one and partly for the benefit of the other, or does he work a month for one and a month for the other?

Doctor GALLOWAY. The cotton work is such that he will spend three months in the South working on this wilt, and devoting his entire time to it, and during that time we carry him on the cotton boll weevil fund.

The CHAIRMAN. Yes; but when he gets back to the other work you put him on that fund?

Doctor GALLOWAY. We put him on that fund.

Mr. ZAPPONE. Mr. Chairman, I find that the appropriation of \$105,000 for cotton boll weevil investigations was allotted by the Secretary quarterly, as required by law, and that the total amount of expenditures under the various projects which you have just been discussing is \$99,956. The total of the appropriation was \$105,500, leaving a balance of \$5,544. So the work was pretty well blocked out into projects and all the money was used except this small amount.

The CHAIRMAN. Now, generally, Doctor Galloway, state how that

\$105,000 was disbursed—that is, whether the whole appropriation was exhausted, or what the fact was in that respect.

Mr. ZAPPONE. I can tell you just what the actual balance was. [Examining papers.]

The CHAIRMAN. As I understand, you have developed a system of cultivation which, while it is not an absolute elimination of the boll weevil, for practical purposes accomplishes that result?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Will you be kind enough to state, as briefly as you can, how that result is produced?

Doctor GALLOWAY. In the first place, the farmers are urged to adopt fall plowing in order to get as many of the weevils turned under as is practicable, and in order to let the frost get into the ground wherever there is frost, and if not frost, then air. In the South the farmer must depend upon the airing of the soil, where in the North we can depend on the frost to tear it asunder. That is the first step—to induce the farmers to adopt a practice which they seldom, if ever, adopt, to plow in the fall and be ready to plant at the very first opportunity in the spring; and then to secure and plant types of cotton which are known to be early maturing and which either have been developed by the breeding work of the Department or have been secured from men who have for a number of years been working on early types of cotton. We do not give the farmers any seed, except in incidental cases simply for a demonstration. The farmer is directed and shown where to buy seed and the kind to buy, and then he is sent every week a very concise statement as to what it is best for him to do. You will understand that I am speaking of the farmer who has already agreed to cooperate with the Department. He is one of our “demonstrators,” as we call him, and he is directed in the matter of putting in his seed, whether or not he shall use fertilizer, and if so, what kind.

The CHAIRMAN. Is there any fertilizer that promotes this result?

Doctor GALLOWAY. Yes.

The CHAIRMAN. As distinguished from other fertilizers?

Doctor GALLOWAY. Yes; there are fertilizers that have a tendency to hasten maturity, and the use of those, of course, is always an advantage where the soil is going to respond to fertilizers at all.

The CHAIRMAN. It simply gets the crop out of the way of the weevil?

Doctor GALLOWAY. It gets the crop out of the way of the weevil.

The CHAIRMAN. Does the fertilizer promote immunity from the weevil in any other way?

Doctor GALLOWAY. No, sir; in no other way. That work is continued all through the summer. In the meantime, our representative, our particular agent who has that territory under his immediate charge, visits this farm perhaps once or twice during the season, and encourages the man in his efforts. The farmer may have ten acres; and at the end of the season he is asked to fill out a little card showing the quantity of cotton picked from the 10 acres under this treatment, and the quantity of cotton picked from a corresponding area under the old method; and we follow the work up in that way. But in the meantime this is acting as a demonstration or object lesson to adjacent farmers, and in nearly all cases his neigh-

(Witness: Galloway.)

bors have been doing the same thing he has been doing, simply following his line.

That, briefly, is the way in which we do the work, or inaugurate the work. We usually have a responsible man go into a community, call the farmers together, give them a general talk as to what our aims are, point out to them that we are not there to introduce any specially new things, but that we are going to tell them how successful farmers in their immediate vicinity are growing these crops despite the weevil, and ask them to go in on the matter of the demonstration; and usually we get fifteen or twenty from each neighborhood to do so. That is, in brief, the demonstration work.

The CHAIRMAN. It simply comes down, then, to this—fall plowing and the earliest possible maturity?

Doctor GALLOWAY. The earliest possible maturity, and thorough cultivation during the growing season.

The CHAIRMAN. That, of course, promotes maturity?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Does cultivation of the plant in any other way except by promoting early maturity increase the immunity?

Doctor GALLOWAY. It diminishes the weevils, from the fact that when a weevil attacks the cotton it punctures the square, the premature bud; and that square falls off, and in that square is the larva of the weevil; and if you can get that square under the ground you have got the weevil killed. Therefore every one that you can get turned under is so much gained.

Mr. SAMUEL. That many less for next season?

Doctor GALLOWAY. For next season, and less for that particular season.

The CHAIRMAN. The burial of the weevil destroys it?

Doctor GALLOWAY. The burial of the weevil tends to destroy it.

The CHAIRMAN. If it stays above ground will it be preserved during the season?

Doctor GALLOWAY. It will be preserved all during the growing season, as long as there is anything to eat; and then in the fall, when the frosts come, the weevils seek hibernating places under stalks and leaves and at the edges of the woods, and a great many of them die—a great many of them. We do not know how many, but a great many of them die. The few that remain, however, are enough to start the propagation the next spring; and the whole object then is to run your cotton through just as fast as you can, in order to get your crop off before there are enough of the weevils developed to destroy it.

The CHAIRMAN. It is not a question of the tardy development of the individual, but it is a question of the multiplication of the species?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. That is it, is it?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. That is to say, it does not take the weevil three or four or five months to develop so that it proves to be injurious; but it is a question of getting the crop out of the way before the weevils have multiplied to such an extent that they have become able to do the harm? That is the proposition, is it?

Doctor GALLOWAY. That is the point; yes, sir. The weevil is a good deal like the house fly. When you first see them, in the spring,

(Witness: Galloway.)

you notice one or two flies, but they are not observable in any great numbers. They do not bother us; but as the season advances the one or two make a great many more, and then the great many more make many, many more.

The CHAIRMAN. Those individual flies or individual weevils are capable of doing just exactly as much harm at that stage, if they have the cotton to work on, but their number is relatively very small?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And this method that you have suggested destroys more or less of the weevils; and of course when you get the crop out of the way they have not the opportunity to do the damage.

Doctor GALLOWAY. Now, we have this year developed for the first time a type of cotton which grows very low, makes all of its arms or shoots at one time, puts on all its bolls at one time, and then stops. That is all done by the last of July; and actual results show that by planting those small-growing stalks thickly we can get as much cotton or more cotton from an acre than we could by the old tall-growing, weedy sorts, planting them farther apart. That is, we got a bale and a half of cotton from these short-growing types of cotton this year where we only got about three-quarters of a bale from the ordinary type.

The CHAIRMAN. You have not yet found any antidote for the weevil?

Doctor GALLOWAY. No, sir. The nearest thing we have come to it is the Guatemalan ant, which has not proved a success so far.

The CHAIRMAN. By the adoption of these improved methods of culture, which is all this amounts to, practically; there is nothing very mysterious about it either, as it turns out; simply the adoption of common-sense methods. By the adoption of these methods, to what extent have you relieved the industry of the depredations of the weevil?

Doctor GALLOWAY. We have relieved it in the territory the weevil has invaded to an extent that can be expressed statistically, but I have not the figures with me—that is, we have the records of the number of bales of cotton shipped from certain shipping points for the last four years, showing the gradual and considerable increase, which can only be accounted for from the fact that it is due to these improved methods, for the reason that the weevil is just as abundant there as it ever was.

The CHAIRMAN. Are these methods that have been employed the result of experimentation and development on the part of the Department, or are they facts that were thoroughly well known at the time?

Doctor GALLOWAY. They are both, but primarily facts which are known to a few successful farmers and always have been known and always will be known.

The CHAIRMAN. Except that the information had not been generally disseminated.

Doctor GALLOWAY. It had not been generally disseminated.

The CHAIRMAN. And the average man had not availed himself of it?

Doctor GALLOWAY. Yes; and if you are familiar with conditions in the South you will understand, of course, that the southern farmer is the most conservative man on earth, and he must be from the very

(Witnesses: Galloway, Zappone.)

nature of his calling. Even now, 50 miles from the edge of the weevil, the farmers are still waiting until the weevil gets there before they begin to adopt these improved cultural methods.

The CHAIRMAN. All of which would be to their advantage, independent of the weevil, if they would adopt them?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. This fall plowing does not involve two plowings?

Doctor GALLOWAY. No, sir.

Mr. ZAPPONE. Mr. Chairman, returning to the subject of the unexpended balance under the cotton boll-weevil appropriation, I find that in the itemized statement here the apparent unexpended balance is \$9,700; but I also find mention here of some advances made to temporary special disbursing agents, amounting to between \$3,000 and \$4,000. Now, in reporting these projects they have no doubt included the work of these temporary special disbursing agents in the field, which would account for the apparent discrepancy. These projects are not expected to check literally with this appropriation. There has been no attempt to do it, as I told you, by the various bureaus.

The CHAIRMAN. No.

Mr. ZAPPONE. While there is an apparent unexpended balance of \$9,732, I find in the summary of the Bureau of Plant Industry that there are outstanding liabilities amounting to \$11,500.

The CHAIRMAN. So that, as a matter of fact, it would be overdrawn instead of underdrawn?

Mr. ZAPPONE. No; that refers to all of the appropriations of the Bureau.

Doctor GALLOWAY. That does not refer to the boll-weevil appropriation.

Mr. ZAPPONE. I merely made mention of the outstanding liabilities to show that some of them may be outstanding against the cotton boll weevil appropriation, which would further reduce the balance of \$9,000.

The CHAIRMAN. Yes.

Mr. ZAPPONE. We may not have all of that balance at the present time. Some of those liabilities may have been paid since, making the balance nearer what is given here in the projects, \$5,500; and that will go back to the Treasury, of course, if unexpended.

The CHAIRMAN. Before I go to some of the general subjects, I would like to inquire under what method or in what way your supplies, equipment, books, apparatus, etc., are purchased—an item that aggregates over \$500,000?

Doctor GALLOWAY. Omitting the question of seeds, which is a considerable portion of that—

The CHAIRMAN. Well, we will take up the seed proposition by itself.

Doctor GALLOWAY. Our supplies are all purchased in accordance with the regular practice and system of the Department—that is, under contracts, wherever contracts are made, and in direct accordance with the contract rules, which I suppose have already been discussed here; and in the case of those that are not under contract, we adopt the practice, as followed in the Department, of securing informal-bids, and wherever it is practicable to do so, to secure the material, or whatever it may be, from the lowest bidder.

MR. ZAPPONE. Of that sum, \$357,000 was expended in the construction of the Department building. We had no other head under which to put those expenses, except the one you are now discussing, for the reason that we did not make a separate group out of the word "building."

THE CHAIRMAN. The construction of what building?

DOCTOR GALLOWAY. The Department of Agriculture building. I am chairman of that committee, Mr. Chairman—the committee that has the building in hand.

THE CHAIRMAN. Oh, that is simply included in there as a matter of grouping?

MR. ZAPPONE. It is included in there as a matter of grouping, if you will notice, on page 147.

THE CHAIRMAN. I had not supposed that the annual appropriations for the Department included anything for the building.

MR. ZAPPONE. It is not an annual appropriation. The organic act named \$1,500,000. Up to the present time \$1,250,000 has been appropriated in three appropriations, and the money is available until used. They expend it from year to year. What is left in the fund on June 30 of each year we transfer in our cashbooks to the next year, and they go on using it for the general construction. On page 147 you will find, at the top of the page, the balance brought over from the preceding fiscal year—\$849,000 in round numbers. And then under that you will find the salaries; under that the miscellaneous expenses; a little further along—

THE CHAIRMAN. What is this item of "Stannard, A. B.?"

DOCTOR GALLOWAY. He is the contractor for the building.

THE CHAIRMAN. For the Department of Agriculture?

DOCTOR GALLOWAY. No, sir.

THE CHAIRMAN. Then the building for the Department of Agriculture is being constructed by the Department itself?

DOCTOR GALLOWAY. No, sir; it is being constructed under contract with A. B. Stannard.

THE CHAIRMAN. But I mean, by the Department—under its supervision? That is what I mean to say.

DOCTOR GALLOWAY. Oh, yes; I am chairman of the committee.

THE CHAIRMAN. Not that you are doing the detail work.

DOCTOR GALLOWAY. The committee being organized, it did not seem necessary or essential to organize a disbursing office for the new building, and so my force handles the funds.

THE CHAIRMAN. Your force or the committee of which you are chairman disburses the appropriations made for the construction of the building?

DOCTOR GALLOWAY. We order the disbursements—that is, I do, as chairman of the committee—just as if they were a part of our Bureau funds.

THE CHAIRMAN. Yes.

DOCTOR GALLOWAY. But they are kept distinct.

THE CHAIRMAN. In other words, you direct disbursements for that purpose precisely as you do disbursements for other purposes?

DOCTOR GALLOWAY. Yes, sir.

THE CHAIRMAN. So that the building is being erected under your supervision?

(Witnesses: Galloway, Zappone.)

Doctor GALLOWAY. Yes, sir; and the supervision of an army officer, an engineer, who is designated for the purpose. He is one of our expert advisers.

The CHAIRMAN. When was the first appropriation made for that?

Doctor GALLOWAY. For the building?

The CHAIRMAN. Yes.

Doctor GALLOWAY. The first appropriation was made for the building in nineteen hundred and—— Do you remember that, Mr. Zappone?

Mr. ZAPPONE. I think it was in 1904. The first appropriation was \$250,000. The next year, 1905, \$700,000 was appropriated.

The CHAIRMAN. You have not got the appropriation here for 1904, have you?

Mr. ZAPPONE. No, sir.

The CHAIRMAN. Did the appropriation of 1904 make a limit on the size of the buildings?

Doctor GALLOWAY. No; the original appropriation limited the amount to \$1,500,000.

The CHAIRMAN. It limited the amount; and that was the appropriation of 1904?

Doctor GALLOWAY. Yes.

The CHAIRMAN. It appropriated \$750,000, but limited the amount to be expended to a million and a half?

Doctor GALLOWAY. The first act limited the appropriation only; it did not appropriate anything.

The CHAIRMAN. Oh, I see. What was the purpose of that act?

Doctor GALLOWAY. Simply to give the authority to the Secretary to go ahead with the plans and preparations to begin work.

The CHAIRMAN. To select a site?

Doctor GALLOWAY. To select a site, and so on. Then when we were ready, we asked for an appropriation sufficient to cover what, in our judgment, would be required for that particular year.

The CHAIRMAN. To proceed with the speedy construction of the building?

Doctor GALLOWAY. To proceed with the construction. We have done that right along, and we have expended to date the sum of \$825,011.77, and we have out liabilities of \$585,169.63, making a grand total of \$1,410,181.40.

The CHAIRMAN. So that the building is either constructed or contracted for practically in full?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. You have only about \$100,000 to expend?

Doctor GALLOWAY. It will be finished about the 1st of next January and will be completed absolutely within the appropriation.

The CHAIRMAN. Within the limit?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Did the original act locate the building?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. Does this building furnish sufficient accommodations for the Department?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. How much does it lack of doing that?

(Witnesses: Galloway, Zappone.)

Doctor GALLOWAY. Probably it will take care of 50 per cent. I can give you the definite figures; I have them here.

The CHAIRMAN. In what sort of quarters or accommodations is the Department now located?

Doctor GALLOWAY. In rented buildings.

The CHAIRMAN. Altogether?

Doctor GALLOWAY. Excepting the administrative offices and library, which are in the old building erected on the Department grounds forty years ago.

The CHAIRMAN. What proportion of the Department is in rented buildings?

Doctor GALLOWAY. Four-fifths.

The CHAIRMAN. And what rent is the Government paying?

Doctor GALLOWAY. We are paying now \$54,408.96.

Mr. ZAPPONE. Last year it was a little over \$46,000. A list of the buildings, with the amounts paid per annum in each case, has already been included in this record.

The CHAIRMAN. That appears in our list of expenditures here?

Mr. ZAPPONE. Yes, sir; it is in the record. It has grown from \$46,000 to \$54,000 up to date.

The CHAIRMAN. That is, the rentals paid?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. This building, you say, will only accommodate about 50 per cent of the Department?

Doctor GALLOWAY. Yes. We now occupy 264,000 square feet of space. We are occupying that in our various buildings. The total amount of space rented is 196,000 square feet. The difference is on account of the buildings that we have on the grounds—the old buildings.

The CHAIRMAN. Yes. Now you are going to provide for how many square feet of space?

Doctor GALLOWAY. The new buildings, in round numbers—I have not the actual figures—will practically give us about 120,000 square feet of floor space.

The CHAIRMAN. So that does not give you quite 50 per cent of what you need?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. Does the new building contemplate the utilization of the administration building that you now occupy?

Doctor GALLOWAY. It does until we are able to put up an administration building, because these buildings are for laboratory purposes and for the library.

The CHAIRMAN. The present buildings?

Doctor GALLOWAY. The new ones; yes, sir.

The CHAIRMAN. Oh, the new ones.

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Why was not the building constructed large enough when they started in to build the building for the Department?

Doctor GALLOWAY. The funds were not sufficient.

The CHAIRMAN. The funds of the appropriation were not sufficient?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. Was an effort made by the Department to have a

(Witness: Galloway.)

building constructed at that time that would be large enough for the needs of the Department?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. But you were not able to get Congressional approval of the proposition?

Doctor GALLOWAY. No, sir; we did not get the funds that were requested.

The CHAIRMAN. Then the Government will have to keep on paying these large sums for rental, or else build additional buildings?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. How much more would it cost the Government to complete the plant so that it will be sufficient to accommodate the Department in the manner in which the construction is now going on, by adding thereto, than it would to have constructed originally a building large enough for the Department?

Doctor GALLOWAY. It would cost less.

The CHAIRMAN. It would cost less to build it in parts than it would to build it in whole?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Then it is a matter of economy to build it in this way?

Doctor GALLOWAY. Yes, sir. That is one of the points we have given most careful consideration to and one that I think I can support.

The CHAIRMAN. Then the Department, I suppose, did not urge the construction of the whole plant at one time. Still that would not necessarily follow, because they might urge the development of it in two parts.

Doctor GALLOWAY. Yes; that was the very point. We urged and hoped for its development in parts, rather than for a gigantic, monumental structure, 40 per cent of which would be absolutely worthless for us.

The CHAIRMAN. That is to say, you could get more economical utilization of space by buildings distributed in a different way than you could in one large building, with everything aggregated under one roof.

Doctor GALLOWAY. That is exactly it.

The CHAIRMAN. Was the scope of the proposition that you submitted then the construction of buildings of that character which might involve two or three different buildings?

Doctor GALLOWAY. The proposition was that we should erect our buildings or segments on a purely unit basis, each segment of which would be absolutely complete, each of which would be adapted to the work we had in view, and each of which could be added to indefinitely—a purely business proposition, it seems to me.

The CHAIRMAN. Is it added to, or are separate buildings built?

Doctor GALLOWAY. It is added to.

The CHAIRMAN. That is, by simply spreading out and covering more ground?

Doctor GALLOWAY. We can extend the segments we have there. They are complete in themselves now, but we can extend them until we could take in not only all of the Department as at present it exists, but as it would grow for fifty years.

(Witness: Galloway.)

The CHAIRMAN. The only difference would be that instead of having a party wall between the Departments you would have the finished end of the building?

Doctor GALLOWAY. We would have the finished end of a building, but a building connected by covered corridors—by curtains.

The CHAIRMAN. So that there would be space between the different segments?

Doctor GALLOWAY. No, sir; there would be no space.

The CHAIRMAN. You would have it all closed in?

Doctor GALLOWAY. Yes; that is part of the general architectural scheme.

The CHAIRMAN. Would it not cost less to build it all at one time on that plan than it would to build it in parts?

Doctor GALLOWAY. No, sir; we are constructing our buildings—monumental, absolutely fireproof buildings—for about 38 cents per cubic foot, less than some of the buildings which were put up years ago, when buildings were less expensive than now.

The CHAIRMAN. Yes; but do you not lose the expense of the finished end when you add to that end? It costs more to build the finished end of a building than it would to build a party wall?

Doctor GALLOWAY. The unfinished end we do not construct of the marble material; we simply put in bricks where the curtains come in.

The CHAIRMAN. Then you leave that relatively in an unfinished condition?

Doctor GALLOWAY. So far as the general appearances might indicate; but the building is practically completed.

The CHAIRMAN. It is waterproof and fireproof, however?

Doctor GALLOWAY. Oh, yes.

The CHAIRMAN. And safe?

Doctor GALLOWAY. And safe.

The CHAIRMAN. But as far as ornamental and outside expense is concerned, it is relatively unfinished?

Doctor GALLOWAY. Yes; the end only; I mean where we join another segment.

The CHAIRMAN. On account of the contemplation of adding to it by another building?

Doctor GALLOWAY. Yes; but the architects have overcome that difficulty so nicely that when the segment is completed, at a short distance you can not distinguish the unfinished from the finished portion.

The CHAIRMAN. What are these buildings to cost ultimately, when you get enough to accommodate the Department?

Doctor GALLOWAY. So far as we have estimated, an addition of about \$1,800,000 would be required to construct administrative quarters and quarters that will take in work that does not involve laboratory technique. You will understand that we have several branches of our work that must necessarily be separated in some way from our administrative work, for the reason that we are working on diseases of animals that are highly contagious, and that, as much as anything else, prompted us to study carefully this scheme of segmentation and differentiation, for the reason that it did not seem right or proper that we should subject the whole departmental force to rabies and tuberculosis and other things that the Bureau of Animal Industry

(Witness: Galloway.)

was investigating, or to the fumes and odors that the Bureau of Chemistry might develop.

The CHAIRMAN. In other words, you contemplate complete isolation of those departments that are affected by those considerations?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And that will be possible under this plan which you have developed?

Doctor GALLOWAY. Yes.

The CHAIRMAN. The aggregate cost of which will be about \$3,300,000?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. How much of the space that you now occupy is occupied by storage of material of any kind?

Doctor GALLOWAY. We occupy comparatively little of the space for storage, excepting the storage of official documents, which are stored right in the rooms where the men are at work. Our corridors, however, are crowded with stored material; but we have no general place for storage except makeshifts, wooden buildings and things of that kind that we have put up on the Department grounds temporarily.

The CHAIRMAN. Then there is no waste material that has accumulated in connection with the Department so far as literature or any thing of that sort is concerned?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. You have not anything on hand that you do not need?

Doctor GALLOWAY. No.

The CHAIRMAN. And you have no space that is occupied with anything of that kind?

Doctor GALLOWAY. No; we have too many men and too many lines of work to utilize space with unnecessary boxes and storage material. The only storage I know anything about is some museum material that is used for exposition work. We simply rent a building to put that in.

The CHAIRMAN. That is material that you have separated and selected for the purpose of transporting about the country, as the case may be?

Doctor GALLOWAY. Yes; for exposition use.

The CHAIRMAN. How many stories are being built in this new building?

Doctor GALLOWAY. Five.

The CHAIRMAN. Five stories? Is that all that is practicable so far as the elevation is concerned?

Doctor GALLOWAY. Yes; considering the amount of land that we have there, it did not seem desirable to run our building up too high; and we wanted, of course, to keep within the idea of monumental structures, which are usually of that kind.

The CHAIRMAN. Do you mean by that that you wanted to preserve a sort of unity of architectural design?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Did you investigate the question as to the relative expense of adding more stories, and thus utilizing under one roof more floor space?

Doctor GALLOWAY. That question was investigated by the committee, and we did not see how we could very well cheapen the cost of construction without putting up a building which would not be fireproof, running it up in stories. Of course, we could have added on to the stories of this structure that we were putting up, but it would have destroyed it architecturally.

The CHAIRMAN. Was that the only objection? Was it a fact that as a matter of constructive economy additional stories could be added, and thus get additional floor space at less expense than you would if you were constructing another building with only five stories? That is to say, would six or seven stories give you relatively less cost of the floor space than the same amount of floor space in a five-story building?

Doctor GALLOWAY. I do not think so. I have not the figures; but the way we are constructing our buildings I do not think that would be the case. I might add, Mr. Chairman, that since the bill was passed making the appropriation for those buildings the total space required has grown to 92 per cent.

The CHAIRMAN. How is that?

Doctor GALLOWAY. The growth of the total space required for our people since this bill was passed is 92 per cent. That is, we need 92 per cent more space than we did at that time.

The CHAIRMAN. More than you did when this bill was passed?

Doctor GALLOWAY. Yes.

The CHAIRMAN. That is due, to a large extent, to the unusual and extraordinary duties that have been devolved upon that Department within the last year or two?

Doctor GALLOWAY. Yes, sir. Then the annual rentals at that time were only \$21,000, while now they are \$54,000, as I mentioned a little while ago.

Mr. ZAPPONE. Is it not a fact, Doctor Galloway, that the bill originally proposed carried a larger appropriation, but was not passed?

Doctor GALLOWAY. Yes—two millions and a half. The original bill carried an appropriation of two millions and a half.

Mr. ZAPPONE. The second bill naming \$1,500,000 is the organic act under which the construction is being done and was passed, I have understood, without being submitted to the Secretary of Agriculture; so that the fact of the amount being small has limited the building to the construction that has been started.

The CHAIRMAN. Did the act authorizing the building contemplate limiting the Department of Agriculture to a building costing not over one million and a half of money, or was it passed on the hypothesis that you were starting a series of buildings that might ultimately cost \$3,300,000? Of course I have not seen the act. Do you remember, Doctor?

Doctor GALLOWAY. I do not think there was any hypothesis in it or anything else of the kind. It was simply passed at the tail end of a busy session; a million and a half was appropriated, and the Secretary was directed to secure plans and put up a building within that limit, and to bring within those buildings all those Bureaus that are now occupying rented quarters, which meant the laboratory force.

(Witnesses: Galloway, Zappone.)

The CHAIRMAN. Your recollection of the Act is that it did not necessarily contemplate that this was to be a building sufficient for the needs of the Department?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. But that it authorized you to start a plan or to start a series of buildings that would ultimately be developed in this way sufficient for the needs of the Department. Of course, I have not seen the Act at all, and I do not know a thing about it. What is your idea about that?

Mr. ZAPPONE. I think that was the intention, as Congress appropriated \$1,000,000 less than was originally estimated for by the Department.

Doctor GALLOWAY. That seemed to be the intention of the Act, as we had already, under a previous Act of Congress, submitted a plan for a building costing two and a half millions, which was not approved. The bill passed the Senate and was eliminated in the House, and this other bill was substituted in its place, drawn up by the Committee on Public Buildings and Grounds, and passed without ever being submitted to the Department.

The CHAIRMAN. Would not that rather indicate that the contemplation of Congress was that the buildings for the Department of Agriculture should be built within that limit, and that Congress disapproved of the plan of buildings that might cost ultimately two millions and a half?

Doctor GALLOWAY. I hardly think so, and I know that that was not the understanding of the Committee that handled the thing; because Mr. Mercer at that time was Chairman, and I had conferences with him, and I think he understood the situation.

The CHAIRMAN. Doctor, I wish you would state in your own way the most salient and typical things that are being done by your Bureau, as illustrating and demonstrating its utility, and affirmative and positive results that have been accomplished.

Doctor GALLOWAY. In the first place, I consider the pathological investigations of the Bureau of preeminent importance. Of course I shall not put any line of work ahead of another, because there are various men who are carrying on these investigations, and I, as chief, must practically consider one phase of the work just about as important as the other. But I put pathological investigation as preeminent, for this reason: There are probably one hundred million or more dollars lost every year through plant diseases; and the Bureau of Plant Industry is endeavoring in every proper and legitimate way to discover the causes of those diseases, and to point out practical methods of remedying them.

As a specific instance of work in that direction, I might mention one, namely, a disease of the peach known as "curl." This disease attacks the leaves and causes them to drop off, and the fruit to either die upon the tree or to become worthless. That keeps up for a series of years, and the tree eventually dies. By laboratory investigations the cause of this disease was discovered to be a minute fungus which lives over-winter on the twigs; and the suggestion was made in the laboratory to adopt certain methods of treatment by spraying. The spraying work was applied in the field, first in an experimental way, and later generally in certain parts of California and other sections

(Witness: Galloway.)

of the country. As a result of one season's work in a certain section of California the growers there, at our request and with the assistance of such help as our expert in charge of the investigations gave, estimated their saving at about \$300,000. The total annual saving resulting from our work along this line is at least \$1,000,000.

That is one particular item.

The CHAIRMAN. What substance do you use for spraying?

Doctor GALLOWAY. This particular spray was what is known as Bordeaux mixture, a material that has now come into almost general use.

The CHAIRMAN. That is the universal common spray?

Doctor GALLOWAY. Yes; a spray that consists of lime and copper sulphate.

An entirely different line of work, handled in an entirely different way, was that having to do with the so-called cotton wilt of the sea-island cotton districts. Sea-island cotton, as you know, is grown along the Atlantic coast, mainly on the islands, and is a very high type or grade of cotton, from the fact that the fiber is unusually long, and it always commands a premium in the market. Six or seven years ago this sea-island cotton began to die from a trouble which the farmers designated as "wilt," for the reason that plants here and there in the field would wilt, and the farmers were not able to save them in any way. We investigated the disease, and found that it was due to a microscopic fungus which could live in the soil, but which also attacked the roots of the plant, found its way into the tissues that conduct the water up into the top of the plant—

The CHAIRMAN. That is, followed the sap from the roots up into the top?

Doctor GALLOWAY. Followed the sap-carrying vessels, found, evidently, what was wanted for its growth, and clogged up these vessels in such a way that the plant died just as it would if you cut it off below the ground with a knife.

The CHAIRMAN. It stopped the circulation of sap?

Doctor GALLOWAY. It stopped the circulation of sap, and the plant withered and died. Of course it required time and laboratory effort to work these things out. We then tried various methods of handling this fungus by soil treatment, all of which proved of no avail. Then it was observed by our investigators that here and there in the field there would be a plant that would stand up, despite the fact that the others were going down. This suggested the idea of immunity; and we then began selecting for immunity, and at the same time, of course, we had to keep up the high standard of quality of lint and yield per acre. The result of all that has been the securing of a wilt-resisting type of cotton, which is now universally used by the sea-island cotton men. At the same time there is grown with the cotton the cowpea, for rotation purposes, and this cowpea was also affected with the same fungus; and it made it necessary for us to secure a fungus-resisting cowpea. This was accomplished, and we have secured and are distributing now every year, and have been for some time distributing what is known as the Little Iron cowpea—a type that will stand up in the presence of this fungus, and can be used in rotation with cotton. The introduction of resistant types of cotton and cowpeas is worth \$400,000 annually to the farmers interested.

(Witness: Galloway.)

The first, peach curl, is an example of a disease that we handled by direct topical treatment. The second is an example of a disease that we handled directly by securing an immune type. Other diseases are handled in similar ways; and we have that work going on in many parts of the country.

The CHAIRMAN. The immune type is the result of a system of selection and development?

Doctor GALLOWAY. Yes, sir. After all, I consider that kind of work our highest grade of scientific investigation, for the reason that when we secure an immune type we are able to place in the farmer's hands something that does not make necessary the yearly treatment that is required in other diseases.

The CHAIRMAN. Does a type like that, when once distributed, maintain its integrity, as a general proposition?

Doctor GALLOWAY. It does, if it is carefully watched and guarded by the grower himself, which he can do after he learns the methods.

The CHAIRMAN. In other words, the process of selection and preservation has to be continued, practically?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Otherwise you get deterioration of the plant.

Doctor GALLOWAY. We have simply introduced in that work down there another element of selection which the planters can recognize and which every year they take into consideration when they go through their fields and select their plants for seed—that is, the element of resistance to wilt. Even now they find some few plants here and there that are going down, and of course they do not take any seed from those plants.

So much for pathological work. There are many different phases of it. The preservation of wood, of course, is a very vital and important question in this country, owing to the fact that our wood is becoming less and less abundant, and methods of preserving railroad ties, fence posts, telegraph and telephone poles, and all those things present a highly important problem. The preservation methods introduced by the Bureau result in an estimated annual saving of \$100,000.

The CHAIRMAN. Does that come legitimately within the scope of your Bureau of Plant Industry?

Doctor GALLOWAY. Yes; so far as relates to the study of the pathology of wood destruction. When we have attained the point where we are able to turn the problem over to the Forest Service, they take it and apply it in a broad way.

The CHAIRMAN. You only devote attention to the development and the preservation of plant life?

Doctor GALLOWAY. Yes; to the preservation of plant life—not so far as relates, however, to insects, mammals, and things of that kind, but so far as relates to the diseases produced by living plant organisms, fungi, bacteria, etc.

The bacterial diseases of plants are numerous. Pear blight is one of the most common—a disease which is produced by a minute organism similar to that which causes tuberculosis in man. That is spread by insects, especially bees, from flower to flower, and it then traverses the branches and causes the limbs to blight, and frequently causes the whole tree to die.

(Witness: Galloway.)

That has all been worked out, and our method of treatment is the elimination of the wood containing the germs—that is, elimination of the wood which contains the hold-over germs. If we can get all the diseased wood out of an orchard during the winter, there is comparatively little infection the next season, as the bees have nothing to work upon. The infected places exude a gum which the bees and other insects find the first thing in the spring. They go there and take this gum upon their feet and fly to a flower and alight in it. The flower having parts that are practically unsupported by tissues, protective parts, the blight gets into that part and proceeds at once to develop and go down the stem into the main body of the tree. Our control methods result in an estimated annual saving of \$1,000,000.

Another most important line of work which we are pushing is that having to do with the improvement of plants by breeding and selection, to which I have briefly referred. That is the securing of new crops, the upbuilding of industries through securing plants which will adapt themselves to new conditions or new environment. Probably a most typical example of that work is to be found in our cold-resistant oranges, which have been developed and which will grow as far north as southern North Carolina, and which will undoubtedly come into use in many sections of the country as not only a fruit for the manufacture of marmalade, but a fruit valuable for other purposes as well. The cold-resistant orange trees, as soon as they come into general bearing, will produce annually fruit valued at \$250,000.

The CHAIRMAN. When you say “breeding,” does that involve the transmission of the qualities of one plant to another?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. How is that accomplished?

Doctor GALLOWAY. The only thing we had to work on in the case of the hardy orange was a little Japanese fruit that was brought into this country thirty-five or forty years ago, and which is used as an ornamental hedge plant. It is called *Citrus trifoliata*, from the fact that it has three leaflets. We have hedges of that kind on our own grounds, and it grows as far north as New York. That plant bears a little fruit about the size of a walnut, but one which is wholly inedible. That was the basis for hardiness. We crossed that fruit with the sweet orange of Florida and we secured then a hybrid containing the qualities of both the Japanese orange and the sweet orange.

The CHAIRMAN. How was that done, by grafting?

Doctor GALLOWAY. No, sir. That was done by actual hybridization—that is, carrying the male element of one plant to the female element of another, and vice versa, through the flowers. We have made crosses both ways, and as a result of the crosses we got thousands of fruits, which gave us many more thousands of seeds. The seeds were planted, and within the seeds we had the latent germ containing the qualities of both parents; and when the seeds were put out, and grew, we were able to go through our nursery rows and pick out the ones that were different from either of the parents. That required several years' work.

After we got what appeared to be a desirable form, the next problem was to bring them into quick maturity, and we did that by taking these promising stocks and budding them into bearing trees. When we

(Witness: Galloway.)

find that we get a fruit that is really of value, we have it propagated, or propagate it ourselves, and disseminate it, and we have disseminated now five or six new types of these citranges, or hardy oranges. Now, we expect to go further with the work, by taking the seed from the citranges and getting from them oranges which are sweet and hardy. We have not got the sweet orange yet, but we have the lemon-like orange or citrange, which partakes more of the nature of a lemon than it does of an orange, but which is very valuable for drinks and for marmalade and preserves.

We also have been successful in developing new citrus fruits, such as, for instance, one that we call the tangelo, a hybrid between the grapefruit, or pomelo, and the tangerine orange. The tangerine orange we can eat out of the hand, and it is a nice little thing to handle. It has a velvet skin, and the segments come apart easily, while the pomelo we have to cut in two and bring in on a saucer, and eat it with a spoon. We were desirous of securing some of the qualities of the tangerine orange in the pomelo. Hence we began our work of crossing the two, and as a result we now have and are distributing what we call the tangelo—a grapefruit that will break into segments like a tangerine orange, that is not so bitter as the ordinary pomelo or grapefruit, but is just as juicy and sprightly as the grapefruit, and has that tonic principle which the grapefruit has.

The CHAIRMAN. Have you developed a plant that is agriculturally of utility, that can be grown and will produce that fruit prolifically?

Doctor GALLOWAY. Oh, yes, sir; we have the trees. The trees have been developed and are in the hands of nurserymen, and are being distributed.

Similar means of investigation have resulted in the production of new types of pineapples, especially adapted to certain sections of Florida, and which have characteristics which enable us to ship them long distances. The finest pineapples grown can not be shipped as they are so delicate in flesh that they can be eaten only at home or at the hotels in Florida. But these types that we have developed have all the aroma and the characteristics of the finer types and yet can be shipped. The tangerine orange, the tangerine grapefruit, and the new species of pineapples will be worth at least \$150,000 annually.

Tobacco is another plant upon which we have worked in the matter of creating new types. We have worked in Connecticut, we have worked in Florida, and some preliminary work has been done with tobaccos in other sections where different types are grown. We are developing and have developed tobaccos which are grown under tent in Connecticut, and which are uniform in type and are used exclusively for wrappers—that is, in competition with the Sumatra goods, of which we import between \$15,000,000 and \$16,000,000 worth every year. The problem there has been a difficult one for the reason that we had trouble in getting uniformity of type.

We imported seed from Sumatra and tried that seed, expecting that under the conditions pointed out to us by the Bureau of Soils, by growing the plants under tents, we would be able to get a uniform product. But the product was not uniform. Then one of our investigators discovered that uniformity could be secured by eliminating the pollen from other plants, and forcing the individual plant of the type wanted to pollinate its own flowers—to fertilize itself, in other words;

(Witness: Galloway.)

and when that was found out, by the simple process of putting a paper bag over the top of the plant, the desired uniformity was attained.

The CHAIRMAN. When you say "fertilize itself," you use the term in the sense as contradistinguished from sterilizing?

Doctor GALLOWAY. Yes.

The CHAIRMAN. That is, make it productive—make it fertile?

Doctor GALLOWAY. I do not mean it in the sense of fertilizing the soil, but I mean this: Every flower to produce seed must either be fertilized by the male element in that flower or the male element from some other flower.

The CHAIRMAN. Yes.

Doctor GALLOWAY. Now, as a matter of fact, the tobacco flower—

The CHAIRMAN. In other words, in order to get the reproductive faculty.

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. That is what you want.

Doctor GALLOWAY. And we found that when the flower of an individual tobacco plant of a type that we wanted was fertilized with pollen coming from an outside plant, even though it might be of the same type that we wanted, it would produce conditions in the germ that would cause variation. When we excluded the foreign or outside pollen by putting a paper bag over the whole thing and simply excluding insects we got a seed which gave us absolute uniformity of development.

The CHAIRMAN. That simply meant preserving the integrity and the purity of the plant by this method which you adopted?

Doctor GALLOWAY. Yes. Now, one plant of tobacco will give us enough seed to plant thirty acres; so it was a very simple problem to get enough seed. But in order to carry out this thing to its end and determine the real value of it we not only have to grow the tobacco, but we must ferment it, and test it, by smoking and otherwise. The field work is done in the summer; the fermentation is carried on in the curing barns, usually those of the growers themselves, and in special cases in our own fermentation laboratories; and afterwards the tobacco is made up into cigars and artificially smoked by a smoking machine, which will enable us to smoke several cigars at one time, and determine the qualities of the tobacco by the aroma and the color of the ash, and all those things that make up what is considered a good cigar. The estimated annual value of improvements in the uniformity of tobacco from methods of saving and cleaning seed, and the new type of tobacco introduced is \$400,000.

And if we find a particular type that has given us the qualities we want we have the record going right back to the original parent, and the next year we can put out more of that seed and find out how it turns out, and keep on in that selective work which is in line with the breeding work.

Another important—

The CHAIRMAN. Right there, before you go any farther, what use is made of the fruits and plants that are thus developed by the Department? That is, in what way does the public get the benefit of the results of that work? Does the Department grow them for sale, or does it put them out so that the public can have an opportunity to see what they are, and private individuals produce the seed and

(Witness: Galloway.)

thus distribute them, and the public generally get the benefit of them?

Doctor GALLOWAY. The seed and plants are distributed gratuitously until the time is reached when they will take care of themselves commercially. Then we drop them.

The CHAIRMAN. If these different varieties prove valuable private enterprise takes up the business of producing them?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And selling either the plants or the seed. Now, to what extent have the public utilized the results of the work of your Bureau?

Doctor GALLOWAY. In the case of tobacco, last year we sent out in the neighborhood of 6,000 samples of this improved seed, and we have already received returns from about 4,000 men who tried it. This, by the way, I may say, is one of the methods of handling the new seed proposition that I have in mind. That is, the tobacco work was done under that fund, a part of it, and the seed was distributed largely through Members of Congress in the following way: Instead of assigning a Member a specific number of packages, we simply addressed a communication to Representatives in districts that grew quantities of tobacco, and called their attention to the fact that we had been developing these tobaccos by breeding and selection, and informing them that if they would let us have the names of 25 or 30 reliable men that we could get in contact and correspondence with, we would be glad to take up this matter with them, and if they saw fit to cooperate with us we would endeavor to better their strains by these improved seeds. We received the names of good men, and they are the ones who are now sending in their replies. It was the same with cotton seed in the South; and since the seed work has been under the Bureau of Plant Industry we have gradually worked along that line until we are now expending about \$63,000 of the total sum in that particular direction. But it aids us in our plant-breeding work, in our selection work, and in the dissemination of these things among the people.

In the case of the oranges, we place not more than two of the trees in the hands of an individual, and place a few of the trees each year in the hands of reputable nurserymen who will guarantee, under an agreement with the Department, not to advertise them under any other name except the name that the Department gives them, and not to claim for them any other characteristics or qualities than those we attribute to them. We want to eliminate the possibility of anything in the nature of exploiting under a new name something the Department has developed and discovered, and making the people pay an exorbitant price for it.

That is, briefly, the way we get these things out among the people.

The CHAIRMAN. You do not do it as a commercial proposition?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. That is, you do not raise the seeds of the plants for sale?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. But simply for introductory purposes?

Doctor GALLOWAY. Introductory purposes. We do not want to complicate our account keeping or the handling of our money in any way with the purely scientific work of investigation in other lines.

(Witness: Galloway.)

The CHAIRMAN. And all the distributions you make of the results of work of that character are free distributions?

Doctor GALLOWAY. Free distributions.

The CHAIRMAN. But they are made only so far as in your judgment it is necessary for educative work and introductory work?

Doctor GALLOWAY. Yes, sir; and we frequently meet surprises. We may have something that, in our opinion, ought to take very quickly, and we find that it requires considerable effort to have it appreciated. We find that the things that take most readily are those that fruit growers, farmers, and others are already in a general way familiar with certain types of—for instance, tobacco. It is very much easier to get new strains of tobacco grown than it would be to introduce a new plant like the chayote, a new kind of cucumber which they are not familiar with at all.

The CHAIRMAN. Yes. That is, you can get different varieties of the same plant?

Doctor GALLOWAY. Yes, sir; we can.

The CHAIRMAN. When you can not introduce a new plant?

Doctor GALLOWAY. Yes. When we point out to a man in Florida, for example, that twelve farmers in Florida last year who took seed that we offered them produced \$400 worth more of tobacco per acre from that seed than they produced with their ordinary seed, of course that is evidence to the mind of the ordinary man that he ought, if he possibly can, to get hold of some of that special seed; and that would soon create sufficient demand to develop the commercial quantities necessary. But there we meet another difficult thing, and that is the fact that outside of the Government, and Government agencies and State agencies, there are few private agencies that will take the interest in these things that the Government naturally will take. The interest of the seedsman is along certain specific lines.

The CHAIRMAN. That is, he caters to a market where he has a demand?

Doctor GALLOWAY. Where he has a demand.

The CHAIRMAN. And there is no demand for new varieties until it is created by advertising and education.

Doctor GALLOWAY. And then, even after the demand is created, unless he is a very special seedsman, he is not going to give the attention and time and effort to keeping up the standard that the Government will give. We find that frequently to be the case. We have found it so with such things, as this nitrogen material which we are sending out for the purpose of inoculating leguminous plants.

(The committee thereupon adjourned until Saturday, January 19, 1907, at 11 o'clock a. m.)

(Witness: Galloway.)

JANUARY 19, 1907.

(Part of testimony, given on above date, before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF DR. BEVERLY T. GALLOWAY, CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. Will you be kind enough now to give us the results of the operation of the efficiency system of promotions and demotions that you have applied in your Bureau, showing what its effect has been upon the service by way of either eliminating men therefrom or reducing them from class to class, and in a general way its beneficial effects, if any?

Doctor GALLOWAY. Mr. Chairman, I can not give very specific data along that line as yet. I perhaps should have stated the other day that while we have been engaged in getting this scheme into operation for the past year or two, it only went into actual effect on the 1st of last July, and we shall have our second return of efficiency sheets in a few days. Then our second efficiency list will be made up. I have here the first efficiency list.

Since the 1st of July there have been three demotions, or, rather, two separations from the service and one demotion. The separations from the service were both of men who fell below the 70 mark. I believe that I stated the other day that the mark on which persons were separated from the service was 65, but it is 70; and the warning grade is 80 instead of 75.

While we were considering the working of our scheme, we made one reduction for superannuation, from \$1,600 to \$1,200 a year.

The CHAIRMAN. As a result of an efficiency test?

Doctor GALLOWAY. Yes, sir; but not the same as the one now in operation. The employee now is twenty-first in the class of \$1,200 clerks; that is, he was dropped from this class here [indicating on table] to the twenty-first man here [indicating]. In addition, there have been two separations from the service, and one demotion. They were not actual eliminations from the service. They were transfers.

The CHAIRMAN. To where?

Doctor GALLOWAY. To other bureaus.

The CHAIRMAN. That is, to other bureaus from your Bureau?

Doctor GALLOWAY. Yes. They sought and secured transfer.

The CHAIRMAN. If they had not secured transfer, what would have happened to those two clerks; would they have gone into the lower classes in your Bureau or would they have gone out of the service?

Doctor GALLOWAY. They would have gone out of the Bureau. They would have gone out, but they have, as a matter of fact, gotten these transfers instead of going out of the service. They sought these positions at a lower pay. That, to my mind, shows the necessity of some kind of uniformity in a scheme of this kind, because while we can protect ourselves we can not protect another bureau.

The CHAIRMAN. If the other bureaus had the same plan of efficiency, they would meet the same proposition everywhere they went?

Doctor GALLOWAY. Yes.

(Witness: Galloway.)

The CHAIRMAN. So they could not escape the effect of the operation of this plan in your bureau by going into another, because they would have to carry with them that record of efficiency?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Right here; how many promotions were made during this period?

Doctor GALLOWAY. Thirty.

The CHAIRMAN. Thirty promotions?

Doctor GALLOWAY. Yes.

The CHAIRMAN. And practically three demotions?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Or perhaps four demotions, because there was one superannuated man, who was reduced.

Doctor GALLOWAY. The promotions were made by separations from the service, which gave us the opportunity to move these people up all along the line.

The CHAIRMAN. They went up on the basis of efficiency according to the record?

Doctor GALLOWAY. Yes. Mr. Ball has gone up into this class [indicating on table], and his rating will be fixed the next time we take in the class of \$1,200 men.

The CHAIRMAN. Prior to the adoption of this plan, how many demotions or reductions in class did you have in the same period of time, in your bureau?

Doctor GALLOWAY. I can not give you that, but I can give you the reductions, dismissals, and demotions for superannuation for the whole Department since 1897.

The CHAIRMAN. We do not get a very valuable comparison unless we can confine it to your bureau.

Doctor GALLOWAY. No, sir.

The CHAIRMAN. What are the figures for the Department?

Doctor GALLOWAY. There have been since 1897 of dismissals approximately 400 from the Department. Of demotions there have been approximately 550 and of reductions in grade on account of superannuation there have been between 12 and 15.

The CHAIRMAN. You could not give any idea how many of those occurred in your bureau?

Doctor GALLOWAY. No, sir; not offhand, because I have not worked that out. The figures given I had occasion to look up in connection with the problem of unifying salaries throughout the Department.

The CHAIRMAN. You are investigating the question of unifying salaries?

Doctor GALLOWAY. Yes; in part as a feature of the operation of statutory and lump-sum salaries in the Government service.

The CHAIRMAN. And in connection with that you reached the conclusion that clerks from \$1,400 down were receiving substantially 25 per cent more than people doing the same class of work in private employ?

Doctor GALLOWAY. Yes; 20 to 25 per cent, with exceptions, of course.

The CHAIRMAN. In making your examination of that subject, did

(Witness: Galloway.)

you have occasion to look over the other bureaus connected with the Department of Agriculture, as well as in the other Departments?

Doctor GALLOWAY. Yes, sir. Naturally, I began work where I was most familiar, and have carried it along into other Departments to a certain extent.

The CHAIRMAN. How do these other Bureaus stand, as compared with the Department of Agriculture, with reference to the pay of the clerks of that grade as compared with the pay obtained in private employment.

Doctor GALLOWAY. I think they stand about the same as the Department of Agriculture, with the differences more marked, perhaps, in some other Departments.

The CHAIRMAN. So that you would say as a rule, throughout the Department, clerks of that grade were receiving from 20 to 25 per cent more than clerks of the same character doing substantially the same work for private parties?

Doctor GALLOWAY. I think I would make it broader than that, and say the Government as a whole.

The CHAIRMAN. You would cover all the Government service?

Doctor GALLOWAY. Yes; in a strict comparison of salaries, without other considerations.

The CHAIRMAN. How long have you been investigating this question?

Doctor GALLOWAY. For the last eighteen months or more.

The CHAIRMAN. Alone, or in concert with others?

Doctor GALLOWAY. In concert with others, yes.

The CHAIRMAN. Who are the others?

Doctor GALLOWAY. The subcommittee, of which I am chairman, consists of myself and three representatives from other Departments.

The CHAIRMAN. Are we to understand that you have made, as far as you could in the discharge of your other duties, an exhaustive examination of that subject?

Doctor GALLOWAY. No, sir; an exhaustive study has not been made, and I do not think that I have made as full study of the question as some other gentlemen who have been identified with other subcommittees and who have gone into this matter quite exhaustively.

The CHAIRMAN. Who else?

Doctor GALLOWAY. Mr. Gifford Pinchot, the chief of the Forest Service, would be qualified to give you information along this line.

The CHAIRMAN. Could you make any approximation as to what 20 or 25 per cent of the aggregate of these salaries would be, showing the saving that might be made to the Government if their salaries were reduced to a commercial rate?

Doctor GALLOWAY. No, sir; I can not, as the aggregate is given in one sum of \$142,558,637.

Mr. SAMUEL. Is that for salaries under \$1,400?

Doctor GALLOWAY. No; these are all salaries paid by the Government.

Mr. SAMUEL. What are those under \$1,400?

Doctor GALLOWAY. I do not have the figures.

Mr. SAMUEL. You speak of statutory salaries?

Doctor GALLOWAY. Yes; for instance, the State Department pays \$130,240 in statutory salaries entirely. In the Treasury Department,

(Witness: Galloway.)

for instance, here is the office of the Secretary of the Treasury, where everything is statutory. In the Supervising Architect's office everything is on the lump sum.

I have here a table which shows the amounts paid for salaries in each Executive Department from statutory and lump sum appropriations for the fiscal year 1906, and I have a table giving the details of the same character in the Department of Agriculture, both of which I will submit.

Amounts paid for salaries in each Executive Department from statutory and lump sum appropriations, fiscal year 1906.

Department.	Statutory.	Per cent statutory.	Lump sum.	Per cent lump.	Total.
State	\$180,420	100.0			\$180,420
Treasury	4,584,600	40.2	\$6,820,000	59.8	11,404,600
War	1,871,586	92.5	151,600	7.5	2,023,186
Navy	938,498	88.2	133,868	11.8	1,132,366
Interior	4,378,354	73.9	1,536,290	26.1	5,909,644
Post-Office (with postal service)	39,408,150	35.0	73,328,885	65.0	112,737,035
Agriculture	1,006,400	24.4	3,362,397	75.6	4,368,797
Commerce and Labor	1,987,180	44.8	2,424,949	55.2	4,392,129
Justice	251,460	61.3	159,000	38.7	410,460
Total	54,641,648	38.8	87,315,989	61.2	142,558,637

Department of Agriculture.

Branch.	Statutory.	Per cent.	Lump sum.	Per cent.	Total.
Office of the Secretary	\$110,320	100			\$110,320
Weather Bureau	191,430	19	\$681,550	53	
(General expense, including cost of observations, \$562,010. Take 50 per cent(?))			281,005	24	1,003,985
Bureau of Animal Industry	88,480	64	1,220,500	98.6	1,308,980
Bureau of Plant Industry	157,860	36.5	272,115	63.5	429,975
Cotton boll weevil fund			57,144	100	57,144
Forest Service	81,960	12.8	535,226	87.2	637,186
Bureau of Chemistry	24,080	28.5	60,460	71.5	84,540
Bureau of Soils	34,660	25	103,700	75	138,860
Bureau of Entomology	16,410	34.4	31,300	65.6	47,710
Cotton boll weevil fund			45,714	100	45,714
Biological Survey	7,580	22	26,650	88	34,230
Division of accounts and disbursements	32,210	100			32,210
Division of publications	114,370	91.5	11,000	8.5	125,370
Bureau of Statistics	97,680	63.5	56,500	36.5	154,180
Library	13,000	100			13,000
Office of Experiment Stations	29,040	24.5	88,833	75.5	117,873
Office of Public Roads	12,340	37.4	20,700	62.6	33,040
Total	1,006,400	24.4	3,362,397	75.6	4,368,797

The CHAIRMAN. How difficult would it be for you to give the amounts paid in salaries of clerks of \$1,400 and less?

Doctor GALLOWAY. For all the Departments?

The CHAIRMAN. Yes.

Doctor GALLOWAY. It would probably not be very difficult. I could get that for you.

The CHAIRMAN. If it would not be too much of a burden for you to do it, we would like to put that right in the record. Please state, then, the amounts paid in salaries by all the Departments, in case of salaries of clerks of \$1,400 and less.

(Witness: Galloway.)

Clerks in the Executive civil service of the United States receiving \$1,400 per annum and less.

[Taken from Official Register of July 1, 1905.]

	\$1,801 to \$1,400 (inclusive).	\$1,201 to \$1,300 (inclusive).	\$1,101 to \$1,200 (inclusive).	\$1,001 to \$1,100 (inclusive).	\$901 to \$1,000 (inclusive).	\$801 to \$900 (inclusive).	\$701 to \$800 (inclusive).	\$601 to \$700 (inclusive).	\$501 to \$600 (inclusive).	\$401 to \$500 (inclusive).	\$300 to \$400 (inclusive).	Under \$300.	Total.
Executive Office.....	1				7	10	1						1
State Department.....	14		28	58	616	702	52	25	17	15	9	10	60
Treasury Department.....	617	28	823	28	435	210	25	30	8			4	2,972
War Department.....	359	23	600	8	239	106	54	19	2	5	3		1,702
Navy Department.....	66	53	118	34	249	176	176	97	58	6	4	1	709
Interior Department.....	574	25	919	44	12	686	3						2,692
Post-Office Department.....	142	4	250	16	207	168	3						2,790
Department of Justice.....	18		28	2	1	18	1	1	1				70
Department of Agriculture.....	81	3	131	1	107	92	94	71	66				646
Department of Commerce and Labor.....	82	8	1	13	311	134	21	1	1	14			686
Government Printing Office.....	9	15	9	4	3	1	2	1					44
Interstate Commerce Commission.....	20	29	17	11	14	7							98
Civil Service Commission.....	18		35		29	24	2		1				109
Smithsonian Institution.....	3	7		4	5	11	9	2	3	1			45
Total.....	2,004	195	2,959	215	1,976	2,169	440	247	157	41	16	15	10,484
Railway postal clerks.....	1,292	446	1,767	1,572	4,277	2,023	548	10	11	3	25	17	11,981
Clerks in post-offices.....	452	651	2,906	2,310	3,456	3,291	4,722	4,122	4,078	776	596	12,586	39,956
Grand total.....	3,748	1,292	7,632	4,097	9,709	7,483	5,710	4,379	4,246	820	637	12,628	62,381

(Witness: Galloway.)

Mr. SAMUEL. In which class is the greatest difference between the salaries paid in the Department and in the outside world?

Doctor GALLOWAY. It is in the lower grades.

Mr. SAMUEL. \$720 or \$840?

Doctor GALLOWAY. It is really in all the lower grades, from \$1,400 down.

Mr. SAMUEL. That is to say, the \$840 or \$940 class?

Doctor GALLOWAY. Even lower grades; in fact, in some of these low grades the employees probably could not earn much of anything outside.

The CHAIRMAN. Is it not a fact that in case of salaries in excess of \$1,400 the value of the services depends largely upon either the scientific or professional character or ability that the employee has in determining the question as to whether or not he is receiving more in the Government employ than the same man could in private employment?

Doctor GALLOWAY. Yes.

The CHAIRMAN. And is it not a fact, also, in connection with such men who may now be receiving less than they could get in the commercial world, that the very large majority of them, practically all, have been educated and developed and made specialists and experts in their line in the Government service?

Doctor GALLOWAY. The majority of them have been made experts in the Government service.

The CHAIRMAN. Would you not say that was true as to 80 per cent of them?

Doctor GALLOWAY. Yes, sir; I think that is so.

The CHAIRMAN. Or perhaps more than that?

Doctor GALLOWAY. Probably 80 per cent.

The CHAIRMAN. So that in determining the question as to whether or not a given expert or specialist or scientist or professional man was entitled to receive more compensation from the Government on account of the fact that he could step out of the service and get larger compensation, some allowance ought to be made for the fact that he has been largely educated at the public expense?

Doctor GALLOWAY. Yes, that is very true, especially with the scientific positions.

The CHAIRMAN. Is that factor taken into account generally in the judgment that is passed upon that proposition?

Doctor GALLOWAY. Yes; it is in our Department, at any rate.

The CHAIRMAN. It is in your Department?

Doctor GALLOWAY. Yes; I can not speak for other Departments.

The CHAIRMAN. I think that covers the salary proposition.

The CHAIRMAN. In case of an efficiency statement prepared every six months, with the records made by the employees open to inspection of the employees, would not that promote rather than impair the discipline of the Department?

Doctor GALLOWAY. That is an open question, Mr. Chairman. I am not satisfied as to that point. I sometimes have thought that it might lead to discord from some of the employees, believing that they had not gotten their just deserts in the efficiency ratings given them by their superior officers, but on the other hand that is offset by the fact

(Witness: Galloway.)

that they can go back to the individual ratings and find out in what particular thing they are weak.

The CHAIRMAN. And that would give them an opportunity to overcome it.

Doctor GALLOWAY. Yes; it would give them an opportunity to overcome it. I have here one of the forms that we sent to an employee who had his standing determined. His grade is just within the limit, otherwise he would have been recommended for dismissal.

The CHAIRMAN. Why would it not be a good idea to put that right in, omitting the man's name?

Doctor GALLOWAY. Yes.

Copy.]

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF PLANT INDUSTRY,
Washington, D. C., September 12, 1906.

NOTIFICATION OF EFFICIENCY AVERAGE AND RELATIVE STANDING.

Bureau of Plant Industry.

In accordance with the provisions of Paragraph VI of the Rules Governing Promotions and Efficiency ratings in the Bureau of Plant Industry, promulgated on July 1, 1906, you are advised that your efficiency average for the six months ended June 30, 1906, is 75.98, giving you a relative standing of seventeenth among 17 employees of your grade.

Qualifications.	Ratings.	Weight as a factor.	Total number of points.
(1) Record of service in the Bureau.....	85	4	340
(2) Training and experience, including previous departmental service.....	93	6	558
(3) Efficiency in performance of present duties.....	60	20	1,200
(4) Ability.....	75	20	1,500
(5) Capacity for higher grade work.....	65	10	650
(6) Adaptability.....	40	10	400
(7) Habits.....	100	10	1,000
(8) Personality.....	100	10	1,000
(9) Sick leave and leave without pay.....	95	10	950
Total weights and points.....			7,598
General average on scale of 100.....			75.98

By direction of the Chief of Bureau:

JAMES E. JONES,
Secretary, Efficiency Board.

The CHAIRMAN. That shows the method you use?

Doctor GALLOWAY. This employee had an average of 75.9, and we gave him on ability 75, and he did not have any capacity for a higher grade of work.

The CHAIRMAN. You have stated that when the mark is below 70 the man drops, and when it is 80 he is notified?

Doctor GALLOWAY. Yes. For the purpose of illustrating the method that we use, I will insert in the record one of our efficiency sheets, cutting out the name of the person which has been in actual use, showing the basis on which the results are reached.

BUREAU OF PLANT INDUSTRY.

(Witness: Galloway.)

EFFICIENCY REPORT.

Name, _____; title, clerk; rate, \$1,000.

Record:

Bureau of Plant Industry—

First appointed as laborer, at \$40 per month.

Changes in grade: February 20, 1903, \$40 to \$50; January 1, 1906, \$600 to \$720 per annum; July 1, 1906, \$720 to \$1,000.

Service in this or other Departments prior to appointment in the Bureau of Plant Industry: None.

Training and experience prior to entering Government service: None.

Present duties in detail: Typewriting.

Date: August 3, 1906.

(Above blanks to be filled in by employee.)

(Following blanks to be filled in by head of office, laboratory, or supervising officer. Grade on scale of 100, and assume that 90 per cent is a fair average. Numbers in parentheses indicate the highest possible number of points that can be given for any subject.)

- (1) Degree of efficiency in performing present duties:
- (a) Clerical work (character, 20; amount, 10; quality, 10), character of work.....(40)..... 35
- (b) Stenographic work (accuracy, 20; speed, 20), amount performed..(40).. 25
- (c) Typewriting (accuracy, 4; neatness, 3; speed, 3), quality.....(10).. 25
- (d) Miscellaneous (character, 10; amount, 5; quality, 5).....(10).....
- (2) Ability (as indicated by amount and character of work):
- For typewriter and clerk.....(100).. 85
- (3) Capacity for original work or executive duties (i. e., ability to accomplish results without constant supervision or direction):
- (a) Character of duties: Duties given above.
- (b) Degree of capacity for such duties.....(100).. 85
- (4) Adaptability:
- (a) Capacity of employee to readily perceive what is wanted, devise methods, adapt means to ends, adopt suggestions, and execute the directions of others.....(50)..... 40
- (b) Ability to take up entirely new work and perform it intelligently and satisfactorily.....(50).. 40
- (5) Habits:
- (a) Is employee habitually prompt in attendance? Yes.....(10).. 10
- (b) Is employee ever (often or sometimes) late? No.....(10).. 10
- (c) Is employee absent from desk during office hours (frequently, occasionally, or sometimes) to the neglect of official duties? No.....(15).. 15
- (d) Does employee voluntarily remain after office hours when necessary to prevent work from falling in arrears? No.....(20).. 20
- (e) Is employee habitually industrious (10), 10; prompt (5), 5; subordinate (5), 5; conscientious (5), 5; cheerful (5), 5; zealous (5), 5; trustworthy (5), 5; faithful (5), 5..... 45
- Or inclined to be indolent (40), No; indifferent (40), No; insubordinate (40), No; generally inefficient (40), No. Does he smoke cigarettes? (40) No. Does he habitually use intoxicants? (40) No.
- (6) Personality:
- (a) Is employee agreeable and courteous in dealing with his associates and others, and easy to get along with? Yes.....(20).. 20
- (b) Can employee cooperate successfully with others? Yes.....(20).. 20
- (c) Is employee loyal to the office, the Bureau, and the Department? Yes.....(20).. 20
- (d) Does he criticise adversely or speak disparagingly of other employees or officers of the Department, or their work? No.....(10).. 10
- (e) Is employee ambitious and willing to work for advancement? Yes.....(10).. 10
- (f) Does employee manifest special interest in his own work and a desire to qualify himself for higher grade work or more diversified or responsible duties? Yes.....(20).. 20

(Witness: Galloway.)

(7) Estimate of employee's value:

- (a) Are employee's services entirely satisfactory to his superiors in his present situation? Fairly so.
- (b) If not satisfactory, in what respect? _____.
- (c) Would employee be likely to render better or more efficient service if given other work or transferred to another office? No. If so, what work or office? _____.
- (d) Is general health of employee good, fair, or poor? Good.
- (e) Has employee performed any special service during past six months which would tend to distinguish him from others of his class? No. If so, what service? _____.
- (f) Is employee deserving of promotion? No.
- (g) Has anything occurred during the past six months which would detract from employee's efficiency and should be considered in determining his present rating? No. If so, what? _____.
- (h) In your opinion what could employee do to make his services more valuable or satisfactory in his present position? Learn stenography and improve in typewriting.
- (i) Is employee likely to improve in general efficiency? Yes.
- (j) Is employee's efficiency likely to decline in the near future for any cause (e. g., age, ill health, habits, etc.)? No. If so, for what cause? _____.
- (k) In your judgment, what are the services now performed by employee worth as compared with others performing like service in the Bureau? \$1,000.
- (l) What, in your judgment, would his services be worth if given other duties or transferred to another office of the Bureau involving increase of work or responsibility which employee is capable of performing? Name the duties or the office: Not capable of earning at present more than her present salary.

Remarks: _____.

JAMES E. JONES,
Chief Clerk Bureau of Plant Industry.

AUGUST 6, 1906.

[To be filled in by time clerk.]

Attendance:

- (1) Number of applications for leave during past six months made by employee for periods of—
 - (a) Less than one day..... 2
 - (b) More than one day but less than a week..... 0
- (c) Total number of applications for leave..... 3
- (2) Number of days absent on annual leave with pay during past six months, 8.
- (3) Number of applications for sick leave, 0.
- (4) Total number of days absent on sick leave, 0.
- (5) Number of days absent without pay, 0.

JAMES E. JONES,
Chief Clerk, Bureau of Plant Industry.

AUGUST 6, 1906.

[To be filled in by efficiency board.]

Qualifications.	Ratings based on preceding reports.	Weight as factor.	Total number of points.
(1) Record of service in the Bureau.....	90	4	360
(2) Previous departmental service, including training and experience.....	83	6	498
(4) Efficiency in performance of present duties.....	80	20	1,600
(5) Ability.....	80	20	1,600
(6) Capacity for higher grade work.....	80	10	800
(7) Adaptability.....	75	10	750
(8) Habits.....	100	10	1,000
(9) Personality.....	100	10	1,000
(10) Sick leave and leave without pay.....	100	10	1,000
Total weights and points.....	788	100	8,608

General average (total number of points divided by 100, showing efficiency on scale of 100), 86.08. Relative standing among 17 employees of class \$1,000 on above rating, 15.

Remarks: _____

A. F. WOODS,
LEON M. ESTABROOK,
JAMES E. JONES,
Efficiency Board.

AUGUST 15, 1906.

(Witness: Galloway.)

The CHAIRMAN. Does anything else occur to you in relation to salaries that you would like to state?

Doctor GALLOWAY. I think that is all, Mr. Chairman.

The CHAIRMAN. Before you enter generally upon the question of the utility and value of the work of your Bureau, as a commercial and business proposition, promoting the material interests of the country, I would like to have you state something about the matter of the development of the nitrogen treatment of legumes and other plants.

Doctor GALLOWAY. For years it has been known that certain kinds of plants, namely, the legumes—that is another name for the clover family—have the power of gathering nitrogen from the air. Before that it was known that these legumes or clover plants had the power of building up a soil, but it was not known why. First it was discovered that they could gather nitrogen from the air, and then scientists began to investigate in what manner they secured this nitrogen. It was found that the roots of these plants were infected with little microscopic organisms which produced nodules, and that within these nodules were organisms capable of seizing the nitrogen in the surrounding air and storing it in their own bodies.

That is the whole question, briefly stated. When the clover plant was plowed under the organisms in the nodules died, and the nitrogen which had been gathered was utilized by the growing crop that followed; so that if we plant a corn crop following a clover crop, we usually get a larger crop than if clover had not been grown.

We send out of the country every year in our export crops, wheat, etc., about \$94,000,000 worth of nitrogen alone, and that has either got to come back in the form of chemicals or in some other way. We import large quantities of nitrate of soda and other nitrogen-bearing chemicals, for the purpose of replenishing our nitrogen supply.

The CHAIRMAN. That is, you have to replenish to that extent, or you get nitrogen exhaustion?

Doctor GALLOWAY. Yes; or we get nitrogen exhaustion.

The CHAIRMAN. Right here, is nitrogen one of the abundant elements?

Doctor GALLOWAY. It is abundant everywhere; but it is not obtainable, for the reason that we do not know how to handle it and store it for agricultural purposes, except in a limited way.

The CHAIRMAN. Is it one of the most essential elements of plant food?

Doctor GALLOWAY. Yes; it is one of the most essential elements of plant food. It is one of the controlling factors of plant growth.

The Department began, a few years ago, to investigate this subject, and found, as was already known, that these organisms, growing in the tubercles, could be isolated and grown separately; that is, they could be segregated and brought into the laboratory and grown in a medium made up of certain artificial materials, indefinitely.

The CHAIRMAN. What is this that you could take out?

Doctor GALLOWAY. These little organisms. We could separate them from the clover plant and grow them in an artificial medium and propagate them indefinitely. Now, the real practical work begins at this point. We found that these organisms had a certain power to seize nitrogen and store it, and our problem was to intensify that

(Witness: Galloway.)

power, if we could do so, by giving the organisms a special treatment in the laboratory. So our first work consisted in educating these organisms to seize more nitrogen.

Later we devised a way of putting the organisms up in packages so that they could be sent out to farmers in different parts of the country to be used by them. A farmer has clover seed to plant, and we send him a small supply of the pure culture that has been grown in the laboratory.

We also send some material for growing the organisms in and full directions for using. The solution prepared by the farmer is merely sprinkled on the seed and when the seed is planted the nitrogen germs are present ready to grow upon the rootlets, and the result is that the seed planted will produce plants which have the ability to store up large quantities of nitrogen. In other words, on land on which clover or alfalfa may have refused to grow we can, by this means, greatly encourage the growing of these crops. The work therefore serves two purposes. First it increases the production of a given crop, and second it makes it practicable to grow a crop on a soil where hitherto it would not grow.

We sent, for instance, to Algeria and secured a new kind of alfalfa. When we brought it over here it did not have the proper organisms with it, but we secured them and grew them in the laboratory, and inoculated the seeds so as to insure the growth of the plant.

We sent out last year about 18,000 cultures of these organisms. They have gone into various parts of the country and have been used for alfalfa, cowpeas, vetches, ordinary peas and beans, the sweet pea and various crops of this nature. Two hundred thousand dollars is a conservative estimate of the returns from the 18,000 cultures of nitrogen-fixing bacteria distributed during 1906. In some cases we do not have success, because there may be conditions in the soil detrimental to the organisms. For instance, an acid soil is destructive, and we can not get clover and alfalfa to grow on such soil until we lime it.

Good agricultural practices are essential to the further success of the organisms. For example, last season I had occasion to sow eight or ten acres of crimson clover. My soil was evidently devoid of the organisms, as I could not get a stand of the crop. In August I sowed half of the land with crimson clover seed that had been inoculated—the land was in corn and I sowed it right in the corn—and on the following day I sowed the other half with clover seed that had not been treated with the organisms. I have an excellent stand of clover on the treated part, and just a few scattering plants on the other half.

These nitrifying organisms also live in the soil, and it is a common practice in many sections to transfer soil from one field where the plant has grown successfully to another. That is done with alfalfa. A few bushels of soil per acre from a good alfalfa field will aid in making the growing of this crop more certain in the same manner that pure cultures will.

The CHAIRMAN. Has this soil been treated with the nodules?

Doctor GALLOWAY. No, sir; the soil is full of the organisms.

The CHAIRMAN. And simply sowing that soil brings results approximating what you get with your cultures?

(Witness: Galloway.)

Doctor GALLOWAY. Yes, sir; The only objection to the soil is that we may introduce serious diseases and weeds, and often do; so that this other method is, of course, much more easily handled, as all that we have to do is to send a little vial of the material to the farmer and he can do the rest.

Mr. FLOOD. That is the inoculating material?

The CHAIRMAN. Is that applicable to anything but legumes?

Doctor GALLOWAY. No; not so far as we know.

The CHAIRMAN. Has that been developed so that it is a practical commercial proposition?

Doctor GALLOWAY. It is a practical commercial proposition and has been put on the market by a number of commercial concerns, but unfortunately these commercial concerns have not been as careful with their work as they might have been, and they have had contaminations and much complaint from the people who have used the material. In fact, an examination made by us showed that out of six or eight firms who were handling it there was only one that really furnished a material that was worth anything at all.

Mr. FLOOD. The experiment stations handle it, do they not?

Doctor GALLOWAY. In one or two cases. The Virginia experiment station is putting it out, I believe.

Mr. FLOOD. Very largely.

Doctor GALLOWAY. And they are handling it in one or two other places.

The CHAIRMAN. Is it applicable to other plant life as well as grasses?

Doctor GALLOWAY. Only indirectly.

The CHAIRMAN. My attention has been called lately to the fact that they have been paying attention to this method of fertilization so that it applies to all plant life. Do you know anything about that?

Doctor GALLOWAY. I know nothing about that, except that a gentleman claiming to be a citizen of New Zealand has patented a process for putting up and distributing these organisms which is practically identical with the system we have developed.

The CHAIRMAN. How long has your system been established that he has patented?

Doctor GALLOWAY. Three or four years we have been sending out the material.

The CHAIRMAN. Was the patent of his device on its operation?

Doctor GALLOWAY. Yes.

The CHAIRMAN. And on the method of its preparation?

Doctor GALLOWAY. Yes; we submitted our plans to the Patent Office, and secured a patent ourselves for the benefit of the people.

The CHAIRMAN. And since then has this gentleman secured a patent?

Doctor GALLOWAY. Yes; he has secured a patent since then that in its general application, if carried out, would prohibit bacteriologists from making cultures of bacteria. Bacteriologists could not make cultures of the typhoid bacillus or the bacillus of tuberculosis, if this patent was valid. A patent is granted, as I understand it, on the ordinary bacteriological methods of isolating organisms, which have been in vogue ever since Koch revealed them. Some question has

(Witness: Galloway.)

been raised as to why such a patent was granted. I questioned one of our officers and he said that the only reason he could ascertain was that the examiner who had the matter in charge stated that under his oath he could not ask our Department questions which would enlighten him on the subject.

The CHAIRMAN. That is, the patent can only be granted when the invention is new and useful, and he had no power to find out whether it was already in existence, and therefore was not new?

Doctor GALLOWAY. He had no power to ask questions of our Department, which was in a measure a competitor of this particular man.

Mr. SAMUEL. Has he such a right?

Doctor GALLOWAY. I do not know. I think it would be nothing more than proper for one branch of the Government to ask another branch for its official opinion on a matter of this kind. It seems to me that would be nothing out of the way.

The CHAIRMAN. Has the owner of that patent made any effort to interfere with the operation of your Department?

Doctor GALLOWAY. Yes; he has several times appeared at the Department and written to the Department and taken steps warning us against the sending out of the material without paying him a royalty, or at least using his name, but it is hardly necessary to say that we paid no attention to that. We have gone right along with our work and shall continue to go along with it.

The CHAIRMAN. What percentage of increase in crops resulted from the use of these cultures?

Doctor GALLOWAY. The percentage will range all the way from 10 to 15 up as high as 100 per cent.

The CHAIRMAN. Are these cultures of general utility; that is, can they be used anywhere?

Doctor GALLOWAY. They can be used anywhere, with certain restrictions as regards soil and other conditions.

The CHAIRMAN. The general use of those cultures would very greatly increase the results from agriculture, would it not?

Doctor GALLOWAY. Yes; I think so.

The CHAIRMAN. What does it cost the Government to develop these cultures, if you could give us an approximate idea?

Doctor GALLOWAY. The cost from the inception of the work up to the time we began to send out the organisms, including laboratory equipment and the salaries of the men in the Department, would not aggregate over \$15,000 or \$20,000.

The CHAIRMAN. Comparatively, extremely small?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Compared with the commercial value of the result?

Doctor GALLOWAY. Yes. I might add, Mr. Chairman, that there has been a great deal of exaggeration and a great deal of nonsense said and written about these organisms. They have been "magazined" almost to death, and we have been embarrassed by the overexploitation of such things. Naturally, the magazine men are looking always to find something surprising to write about, and they have raved about this "vest pocket fertilizer," and exaggerated it to such an extent that we have been criticised as if the responsibility for so much

(Witness: Galloway.)

gush rested with the Department. They have made claims for it that we have never made or printed in our publications, and the fact that oftentimes failure may come from lack of knowledge in respect to soil conditions and lack of knowledge in other connections is entirely overlooked by such writers.

The CHAIRMAN. I would like to inquire of you whether or not your bureau has any knowledge as to the loss of productive power on the vast prairie lands of the West, where we have that rich virgin soil, which has been cultivated for quite a series of years without the application of any artificial fertilizer?

Doctor GALLOWAY. We have considerable data on that subject, Mr. Chairman, gathered by the experiment stations of the different States where the stations are located. A number of the experiment stations are engaged directly on the question of maintaining soil fertility. The Ohio experiment station, for example, has been for twelve or fifteen years making elaborate plot tests of different crops on different soil types, with a view to securing evidence which would put them in a position to instruct the farmers to bring back the soils of the State to their original fertile condition.

The CHAIRMAN. Then it is your experience that those soils will lose their fertility unless it is preserved by the rotation of crops and proper cultivation or the application of fertilizer?

Doctor GALLOWAY. Yes. These things are being carefully studied, and all the statistics of production for a number of years, taking certain districts, are carefully compared.

The CHAIRMAN. Yes.

Doctor GALLOWAY. Productiveness, so far as the yield of corn per acre is concerned, has increased in New England, while it is decreasing in the lands of the West. But that is explained by the fact that the New England corn grower has learned how to bring back the fertility of the soil by the rotation of crops and the utilization of manures.

The CHAIRMAN. Can you produce a lawn without weeds, and if so, how?

Doctor GALLOWAY. In answer to that question I would say that it would depend somewhat on where the lawn was to be produced. If you should say in Washington, I would say no. If you should say somewhere in the vicinity of Buffalo, New York, or more northern sections, I would say that it was possible to produce a lawn without weeds.

The CHAIRMAN. How?

Doctor GALLOWAY. In the first place, the proper preparation of the soil is important. The soil should be thoroughly fined and prepared, and then there should be applied sufficient organic manure to make that soil rich enough to grow grass for twenty years, as they do in England.

The CHAIRMAN. What do you mean by organic manure?

Doctor GALLOWAY. Stable manure which has been so thoroughly handled and heated that the weed seeds in it have been killed.

Mr. FLOOD. What is the objection to using stable manure?

Doctor GALLOWAY. There is none, if you prepare it properly and have it heated. There is nothing that you can put on soil that will bring grass better than stable manure.

(Witness: Galloway.)

The CHAIRMAN. What do you mean by heating it; piling it up in piles?

Doctor GALLOWAY. Yes; simply letting it ferment and handling it properly.

Mr. SAMUEL. What do you mean by handling it properly?

Doctor GALLOWAY. Taking care not to let it burn; not to let it fang in heating. Turning it so that you will get the heat that you want, and at the same time destroy the weed seed.

A dressing of that kind, 2 or 3 inches thick, spaded in well, will give the foundation. Sow your grass, say, a mixture of bluegrass, redtop, and white clover—that is the mixture that I would recommend in almost all sections of this country—two parts bluegrass, one part of redtop, and a quart of white clover to the bushel. Sow the seed at the rate of five or six bushels to the acre, September being the best month. The grass gets a good start in the fall, and early in spring you can put the lawn mower on and keep the grass down to about 2 inches in height. Now, you can not do that here, for the reason that our summer suns are too hot, and the minute we begin to cut close summer grasses come in, and then we have trouble. We have been able to maintain a good lawn on the Department grounds by keeping a man constantly picking out the first plants of the summer grasses when they are seen. We put a man out on the big lawn in front of the Agricultural Department building in the spring with a lawn mower, and he cuts the grass and looks out for weeds at the same time, lifting weeds out with a special knife as he goes along.

Mr. FLOOD. Do you sow in the spring?

Doctor GALLOWAY. We prefer to sow in the fall, because you can get a better start in the fall.

The question of watering has a great deal to do with weeds in the grass. One can go out on a lawn and write his name with summer grass using water out of the end of the hose. The bluegrass is killed by too much water. It is a question of applying water in hot sunshine and drowning out your grass.

Mr. FLOOD. It does not need to be applied in hot sunshine to do that.

Doctor GALLOWAY. So that now we put on a man at night, and let him water the grass then.

The CHAIRMAN. What is this summer grass that you speak of?

Doctor GALLOWAY. Summer grass is a crab grass, a Panicum. It sends out a lot of fingers in different directions, like Bermuda grass. The minute there is frost it turns brown, and you have a brown spot instead of green in your lawn. Then you can see in the fall just where the men have overwatered; and where a man has thrown down the hose and gone off and left it lying there and the water has gone out in a fan shape, you will find a fan-shaped brown spot. That has occasioned belief among gardeners in Washington that the ground is filled with all kinds of seed which are in the Potomac water.

The CHAIRMAN. That is rather an illusory reasoning from cause to effect.

Doctor GALLOWAY. Yes.

(Witness: Galloway.)

The CHAIRMAN. Will you state in a general way the utility of your Bureau and the work that you do there to the country, as a commercial and material proposition, continuing your statement which you were making the other day?

Doctor GALLOWAY. When I was before you a few days ago I ran over some of the utilitarian projects of the Bureau. I pointed out the work that we accomplished in the matter of treating plant diseases, how we studied these diseases in the laboratory, and how we applied the knowledge in the field, with the result of saving many thousands of dollars. I want now to briefly review some of the work or practical results from agricultural exploration. I might mention first the fact that for a number of years we were interested in the matter of securing wheats for the semiarid regions.

There is a whole section of country west of the one hundredth meridian where very few crops will grow, the rainfall being deficient. We sent an agricultural explorer to Russia for the purpose of securing wheats from the dry regions of Russia with the intention of introducing those wheats into this country. We secured those wheats first about six or seven years ago, and we put them first in the Dakotas and have since extended them across the country down into the panhandle of Texas. As the result of that introduction of the hard durum wheats, costing probably about \$10,000 altogether, there was produced this past year 50,000,000 bushels of that kind of wheat, all entirely from the original introduction of six or seven years ago. That wheat is probably worth 75 or 80 cents per bushel. The estimated value of last year's durum wheat crop was at least \$25,000,000. That is a concrete case of the introduction of a crop from a foreign country resulting in the building up of an industry in this country in a section where nothing had been grown before.

Mr. FLOOD. How much do you grow to the acre?

Doctor GALLOWAY. About 20 bushels to the acre. But you understand that it grows in a region where no other crops will grow, and if we attempt to move that wheat into a humid region it is not successful. It is primarily and preeminently a dry crop. We have been at work for some little time upon the problem of growing our own plants for the manufacture of matting—floor matting. We import every year about \$5,000,000 worth of matting, mostly from Japan, and that matting is all made from a plant, a rush, which grows in low land or swamps. We have the plant in this country, but we do not have the highest developed type that the Japanese have. We tried to secure the type that they have there by importing seeds, but we found that they did not grow true to seed; just as with other plants that have been highly developed and selected, we would have all sorts and all forms.

So that the problem was to secure a sufficient quantity of the roots of the desirable types from Japan to enable us to establish the industry here. We have had an explorer this past year in Japan, and he has succeeded in bringing over some of the roots. We have gotten them over, and they are being further increased in California at one of our gardens. The introduction of the roots does not round out the problem, because if we had to depend on hand machines and looms to weave this matting the cost would be prohibitive. Manufacturers here became interested, and have developed machines which

(Witness: Galloway.)

are highly effective in weaving this rush. One of these American machines can do as much work in a day as an oriental machine will do in thirty days. We have sent the manufacturers samples that we have grown, and they have used them successfully. So that we want, if possible, to establish our own matting industry in this country, and to keep here as much of that \$5,000,000 as we can.

The CHAIRMAN. Will that plant, if you get it developed and acclimated so that it will be an agricultural proposition, utilize a lot of hitherto waste country.

Doctor GALLOWAY. Yes; that is one of the important points connected with it. The crop is adapted to lands in the South. The rice lands of South Carolina will have to be largely abandoned, because the planters can not compete with those in Texas and Louisiana in growing rice. The abandoned rice lands are well adapted to rush, and it is there we are making our experiments. We wish to put out some demonstration plats in Louisiana. When I say "plats" I mean four, five, six, or seven acres, so as to have a commercial quantity produced.

The CHAIRMAN. How long has your Department been engaged in experiments in connection with this rush?

Doctor GALLOWAY. Two years, now. We are going on with the third year.

The CHAIRMAN. What is the expense that has been involved in that?

Doctor GALLOWAY. It has cost us about \$5,000 a year. It has cost us the labor of one or two assistants, and their traveling expenses.

The CHAIRMAN. Have you reached a commercial result?

Doctor GALLOWAY. Not yet.

The CHAIRMAN. Not yet?

Doctor GALLOWAY. That, is we have not reached the point where farmers themselves are in position to secure the raw material in sufficient quantity to plant it, but this importation we hope will accomplish this, and if we can get started here there will be enough every year. If the crop is grown, there will be just that many more plants for division, because we can split the roots apart.

The CHAIRMAN. You have demonstrated that it can be used?

Doctor GALLOWAY. That it can be used, and we have the machinery to make the matting.

The CHAIRMAN. You have demonstrated as a fact that it can be grown in commercial quantities?

Doctor GALLOWAY. Yes.

The CHAIRMAN. And that it can be used?

Doctor GALLOWAY. Yes; and now we want to secure a sufficient number of people who are interested in the work to produce the raw material for supplying the machines that have been devised or invented.

I might also mention the date industry as one of interest and value. We import from \$200,000 to \$300,000 worth of dates every year, and we have expended \$15,000 or \$20,000 with the object of determining where we can grow dates. That problem has been pretty well worked out, and we have sent our explorers into the date countries for the plants.

The date is grown from suckers. It can not be grown from the seed. The finest varieties are produced from the suckers only. Our

(Witness: Galloway.)

first efforts were made through agents abroad upon whom we thought we could depend; but we found that after we had grown the dates we did not have anything but seedlings. So we sent our own men to the Sahara and other date regions, and brought the types wanted. They were shipped over here, and we have planted them in a number of places. This year the garden at Tempe, Ariz., produced nearly a thousand pounds of very choice dates, and we are gratified to discover that the very best kinds, like the Deglet Noor, that comes as bright and clear as honey, can be grown there. One of the interesting points is that we can grow the date in a region where it is too hot and dry to grow almost anything else. The date will also grow in a soil strong with alkali.

The CHAIRMAN. That also utilizes hitherto waste land?

Doctor GALLOWAY. Yes; that utilizes hitherto waste land. In this connection I might say that we have, in cooperation with other branches of the Department, studied these alkali soils throughout the western part of the United States, and have been securing crops for such soils. There are alfalfas and certain grasses that are alkali resistant—resistant from the fact of natural selection in their original homes. One of the most interesting and striking examples of our practical work is the success secured in camphor growing. Our camphor is nearly all from the island of Formosa. It is a Japanese monopoly, the camphor being secured by the destruction of the trees, which are cut down, the camphor being distilled from the wood. Thirty years ago the Department began sending out camphor-tree seeds, and they were planted through the West and South wherever the climate was not too severe. Camphor will stand 10° or 15° of frost. We put out numbers of the trees in Florida, and a few years ago we began to study the question of extracting camphor from them. We put a pharmacologist, one of our best men, on the problem and he has demonstrated the possibility of extracting the gum from the trimmings of the trees alone. The work has been so successful that a large manufacturing concern in this country which uses in the neighborhood of half a million dollars' worth of camphor every year has taken our expert at a good salary and put him in charge of the work in Florida.

The CHAIRMAN. The trees reproduce these trimmings from year to year?

Doctor GALLOWAY. Yes; that is one point different from the oriental plan. We are further arranging to put out camphor hedges in regions of the South. Camphor makes a very beautiful hedge, and it can be trimmed just like a privet hedge. The trimmings can be used at once for the extraction of camphor, or they can be dried and shipped a considerable distance to a central factory.

A very different line of work which we have been engaged upon, and which has had very striking practical results, is in connection with the handling and transportation of fruit.

The CHAIRMAN. While I think of it, does your Bureau do anything in the line of analyzing soils and producing fertilizers?

Doctor GALLOWAY. No; the Government does nothing of that kind now. The fruit industry in this country has developed so rapidly that it has become necessary to consider the question of opening up foreign markets to our fruit growers. One phase of our work has

(Witness: Galloway.)

had for its object the demonstration of the practicability of shipping fruits to foreign countries, fruits of more or less evanescent character, for example, peaches. There may be a glut of peaches in Georgia, and the markets of the United States may not be able to handle them. Many shipments have been made abroad with a view of demonstrating the practical character of the work. The same kind of work has been done in connection with apples, pears, and other fruit, resulting in securing practical information as to how fruit should be handled and packed and stored in order to reach its destination in the best shape, and to bring the highest price.

In spite of all that, there is an enormous loss of our fruits in storage and in transit, and one of our problems has been to work out the cause of the loss of such fruit.

For example, take apples grown in New York. We may gather them one day and put them in storage and they will keep a certain time. We may gather the same apples the next day and they will not keep nearly so well on account of the atmospheric conditions having been different. Apples grown on different soils or even on different parts of the same tree will keep differently. Then the manner in which the apple is brought into storage has its influence, and all those things apply not only to apples but to other fruits as well.

The CHAIRMAN. Is there anything in the way you gather the apples?

Doctor GALLOWAY. Yes; there is a good deal in that. We have carried this out with fruits like the apple and the pear and the grape, to a certain extent, but more especially with citrus fruits from the Pacific coast. That is a very long shipment and there are very heavy losses in transit. California ships about 30,000 carloads of citrus fruit every year, and the losses will range from fifteen to as high as forty per cent, depending on the time of year and the way the fruit is handled. There has been constant conflict between the railroad interests and the growers and the packers, the railroads claiming that the loss was due to the methods in which the packers handled the fruit, and the growers claiming that both packers and railroad people were not doing the work in the proper way.

Our object in taking up the work was to find out the real cause of the trouble and prevent it as far as we were able. We took up two years ago the shipment of oranges, and began our demonstrations right in the packing houses. It occurred to our expert that a considerable part of this loss was due to the handling of the fruit as it was taken from the tree. The orange, I may say, is clipped with a little apparatus something like a pair of scissors, with a sharp point. Mr. Powell, who was in charge of that work, called attention to the fact that much of the fruit coming into the packing houses had small wounds in the rind, caused by the clippers. The growers at first did not believe that there was much in the question of clipper-cut injuries.

Experimental boxes of clipper-cut injured fruit and fruit that was not injured were prepared and placed in a storage house where it would be under practically the same conditions as in a car going across the country. After a time the fruit was brought out, and in the presence of the packing house men the boxes were opened, and a 25 per cent loss of the clipper-cut injured fruit was found, while there was only a 2 per cent loss in the other fruit. That was the key

(Witness: Galloway.)

to the situation, and trial shipments were made and the results reported from time to time. To make a long story short, the orange growers and packers were satisfied that they must adopt some means to prevent the injuries in picking the fruit, and the remedy was a simple one, merely turning up the points of the clippers, and that resulted, as stated by a conservative man there, in saving them from three to four hundred thousand dollars worth of fruit alone. By the methods in handling introduced, losses in transit have been reduced \$400,000 annually.

Injuries are produced in other ways. The oranges are gathered and brought to the packing houses, where they are run through machinery. One machine brushes the orange and another grades it. No special precautions had been taken to prevent bruises and slight injuries while the fruit was in transit through these machines, and improvements made have resulted in much saving from bruises and rot. The rots are caused by molds or fungi, the spores of which are always in the air. When once infected the fruit rots rapidly in the car where the temperature is high for a number of hours.

I could continue along this line if you so wished, but I have given you a number of illustrations of the utilitarian purposes served by the Bureau.

The CHAIRMAN. You have given illustrations enough, so that they are typical?

Doctor GALLOWAY. Yes; they are typical. But I might mention one other line of work that may appeal to you, Mr. Chairman, although not directly because you do not grow any sugar beets in your section. Practically all of the sugar beets grown in this country are from seed imported from France and Germany. The average sugar content of the beet is about 11 per cent for the whole country. If we could increase that only 2 per cent it would mean an enormous increase in the amount of sugar. We have been endeavoring to demonstrate the feasibility of growing our own sugar beet seed, and have had an expert stationed in Washington State, where the conditions are very favorable for growing the beet seed. We have produced seed there in the last two years that gave us an average of 22 per cent sugar.

This year we have about 15,000 pounds of seed that will give us an average above 19 per cent of sugar. Now, we shall take that seed and distribute it among the sugar beet factories, and they will distribute it among their growers, to be tested alongside of imported seed, so that we have direct comparisons. Where this seed was grown the gentleman who owns the farm has been producing seed commercially, and he has this year about 165,000 pounds. The value of the home-grown sugar-beet seed and methods introduced is estimated at \$200,000 annually. That is the largest quantity of American-grown seed that has ever been produced, and he has sold every pound of it without any trouble. He is going more extensively into the work, and we want to continue the experimental phase of it until we grow every pound of our own beet seed in this country.

A still more striking piece of work has for its object the production of a beet seed that will give us only one plant from a seed. All beets grown, including our garden varieties, have a combined seed, a ball that gives six or seven plants. Now, when you plant that sort of seed

(Witnesses: Galloway, Zappone.)

you have to thin the plants, which is an expensive piece of work. Each seed will produce five or six plants, and you must take all out but one. If we can get a seed that will produce only one plant, that would eliminate the cost of thinning. We started our breeding work with a few seed that had but one germ, and we are now producing about 40 per cent of single-germ balls. We also breed for sugar content at the same time, and the results are very encouraging.

The CHAIRMAN. They have been produced commercially?

Doctor GALLOWAY. We have not reached that stage yet.

The CHAIRMAN. This comes right down to the seed question.

Doctor GALLOWAY. Yes.

The CHAIRMAN. I see that Congress appropriated last year \$168,000 for domestic seeds for Congressional distribution. I would like to have you state in a general way your view of that appropriation and its propriety and utility?

Doctor GALLOWAY. I have the matter in my mind somewhat differently.

Mr. ZAPPONE. The full amount for Congressional seed distribution was \$206,140. See page 131.

And for foreign seeds \$37,780 was appropriated, making a total of \$242,920.

Doctor GALLOWAY. Congress appropriates a total of \$242,000, in round numbers, for the seed work as a whole. Of that amount \$37,000 is specifically appropriated for foreign importations and work of that kind. Of the remaining amount we use about \$63,000, in round numbers, for the building up of new industries in this country through the securing and distribution of new, rare, and uncommon domestic seeds and plants, and the remainder, about \$135,000, we use wholly and exclusively for the purchase of miscellaneous varieties of vegetable and flower seed, putting them up in packets and packages, the same to be equally divided among Senators and Representatives.

The CHAIRMAN. That \$135,000, then, represents seeds purchased in the market?

Doctor GALLOWAY. Seeds purchased in the market; yes.

The CHAIRMAN. And not seeds developed by the Government?

Doctor GALLOWAY. No; not seeds developed by the Government.

The CHAIRMAN. There is nothing special or peculiar or unusual about that?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. Simply commercial seeds?

Doctor GALLOWAY. They are commercial seeds. I should say, however, that in getting these seeds we endeavor to get only those of high quality—that is, seeds that will grow; and we endeavor also to send the seeds into localities where they will be adapted to the soil and climatic conditions. But the seeds are of the kinds commonly found in the trade. The bulk seeds aggregate about thirty-five carloads.

We put them up into something like forty million packets, assemble these packets into about seven million packages, and assign to each Senator and Representative twelve thousand packages containing five packets each.

The CHAIRMAN. Suppose you state right here what the seeds cost

(Witness: Galloway.)

when they are packed ready for delivery? That involves the cost of preparation and for delivery.

Doctor GALLOWAY. They cost \$135,000. That includes everything.

The CHAIRMAN. \$135,000 includes everything?

Doctor GALLOWAY. Yes; the seed alone costs us about \$63,000.

The CHAIRMAN. The balance is the expense of putting up in packages?

Doctor GALLOWAY. Yes. We pay a contractor something like \$37,000 for packeting, assembling, and mailing, furnishing all bags and packets, and doing all work of that kind connected with them.

The CHAIRMAN. Have you any idea what it costs the Government for transportation to distribute that amount of seed through the mail?

Doctor GALLOWAY. It has been estimated somewhere, but I have not the figures in my mind now. It is four or five times more than the actual cost of the seed to us; that is, assuming that the seeds would have to be stamped; or do you mean the cost to the Post-Office Department in handling the seeds?

The CHAIRMAN. The actual cost.

Doctor GALLOWAY. I do not know about that.

The CHAIRMAN. And then the mailing cost would be another proposition.

Doctor GALLOWAY. I can not follow the seeds out of our own warehouse.

The CHAIRMAN. You never investigated the question as to what the actual expense to the Government was of this distribution?

Doctor GALLOWAY. That is easily ascertainable, because every year we make for the Post-Office Department a weighing of all the seeds that go out, so that it can be determined on the basis of the weight.

The CHAIRMAN. On the basis of the postage it is five or six times as much as the cost of the seeds?

Doctor GALLOWAY. Yes. It has been stated that the cost should be estimated on a basis of 5 cents per packet, or about \$2,000,000.

The CHAIRMAN. Expense to the Government?

Doctor GALLOWAY. No; not expense to the Government. The statement means that much if the seed had to be bought at retail.

The CHAIRMAN. What they get retail?

Doctor GALLOWAY. Yes; it would amount to that.

The CHAIRMAN. That is, if the people to whom these seeds are distributed bought these seeds in the way in which they are put out—

Doctor GALLOWAY. And paid 5 cents a packet?

The CHAIRMAN. And paid 5 cents a packet, it would be \$3,000,000 or \$4,000,000.

Doctor GALLOWAY. Yes; 40,000,000 packets; it would be \$2,000,000.

The CHAIRMAN. So far as the \$135,000 is concerned, that is entirely different from the proposition of distributing rare varieties?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Or the development or culture?

Doctor GALLOWAY. Yes.

The CHAIRMAN. For the development of agriculture?

Doctor GALLOWAY. Yes.

The CHAIRMAN. It is a bald commercial proposition?

Doctor GALLOWAY. Yes, sir.

(Witness: Galloway.)

The CHAIRMAN. The Government simply goes into the market and buys a lot of seed?

Doctor GALLOWAY. Yes.

The CHAIRMAN. And then turns it over to the Congressmen and Senators who distribute it?

Doctor GALLOWAY. Yes.

The CHAIRMAN. And the only advantage that a person who uses these seeds has over a person buying them on the market is the advantage of the supervision by the Department of Agriculture over the quality of the seed?

Doctor GALLOWAY. He will sometimes get a variety that is not common in his section, that he could not get unless he sent away for it.

The CHAIRMAN. That is incidental, however?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Why should the Government distribute seed any more than any other thing?

Doctor GALLOWAY. I do not know that it should.

The CHAIRMAN. What is your own view?

Doctor GALLOWAY. My own view is that the plan of distributing ordinary varieties of garden seed should be abandoned, and in lieu thereof we should devote our energies to securing, by introduction and breeding, new seeds and plants, and place them in a way to build up American agriculture and agricultural industries.

The CHAIRMAN. Not so much in the line of furnishing a man all the seeds he needs?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. But furnishing a good sample so that he can use it?

Doctor GALLOWAY. Samples.

The CHAIRMAN. And then letting him develop them himself?

Doctor GALLOWAY. Yes; to illustrate: We have been engaged for some time in developing strains of very high-grade tobaccos, strains that can not be obtained from seedsmen, because they have not gone into the details of selecting for certain special purposes. We have the seed of that tobacco and can place it in the hands of reputable men who will give it a fair trial, who will test it and compare it with the ordinary seeds. And so with other crops.

For a number of years we have been experimenting with cotton. We have secured some very valuable types of cotton which we have distributed in the Southern States, and those types have added a great deal to the value of agriculture in those sections.

The CHAIRMAN. How about these foreign seeds; are they simply a commercial proposition?

Doctor GALLOWAY. No, sir. The Japanese matting rush is one of these propositions, and the durum wheat is another.

The CHAIRMAN. That is a question of new varieties?

Doctor GALLOWAY. Yes.

The CHAIRMAN. And the introduction of new agricultural products?

Doctor GALLOWAY. Yes. Under that fund we have a man now in Manchuria who is getting grain from the colder regions of Manchuria for the colder regions of this country. He is not only securing grains and cereals, but he has sent in already some 400 or 500 lots

of hardy nuts that may be valuable for our northern sections, and we are planning to have him, this winter, go down to the warmer sections and explore certain regions along the Yangtze River in search of fruits and cereals and grains that we can bring over and establish here.

The CHAIRMAN. Those seeds that you import from abroad, those are not distributed as a commercial proposition, as I understand it?

Doctor GALLOWAY. No.

The CHAIRMAN. But rather as a sample and introductory proposition?

Doctor GALLOWAY. Yes; entirely so. Of course, in handling those seeds we endeavor to secure men who are properly situated, with reference to soil and climate, and who have the responsibility and care of looking after the thing until it is established. We work with the experiment stations, and also with individual fruit growers and farmers throughout the country.

The CHAIRMAN. Your whole effort in that direction, and the entire expenditure of money is directed toward the improvement of agriculture?

Doctor GALLOWAY. Yes.

The CHAIRMAN. And not furnishing ordinary seed to plant?

Doctor GALLOWAY. We do not furnish something for nothing; but we take the recipient in as a collaborator of the Department.

The CHAIRMAN. Your idea is that the whole seed proposition ought to be brought back to that idea?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. What is your experience or knowledge of the real utility of this wide, broadcast distribution of seed by Congressmen, as to its value to the people? Do they get it in sufficient quantities to make such use of it as really justifies a continuance of the practice on a commercial basis, or have you any experience of it in that direction?

Doctor GALLOWAY. It is difficult for us to secure that sort of information; because, while there is printed on every package "Please report to the Department," we get very few reports. The Members themselves are the ones who are really in closest touch with the people, and know better than we do what the demand is.

The CHAIRMAN. And the use to the community?

Doctor GALLOWAY. And the use to the community. We can not.

The CHAIRMAN. Do you think of anything more?

Mr. SAMUEL. No, sir; I do not.

The CHAIRMAN. I think we have cleaned up everything pretty thoroughly [turning to Mr. Zappone].

Mr. ZAPPONE. I think of nothing else on the general work of Doctor Galloway's bureau.

The CHAIRMAN. If you would like to state anything further with reference to the work of your bureau, we would like to have you do so.

Doctor GALLOWAY. I do not think I can add anything further to what I have said. I have dwelt sufficiently long, I think, on the utilitarian phases of our work to illustrate some of the principal points. On the other lines I think I have gone over the field as thoroughly as necessary.

(Witnesses: Galloway, Zappone.)

The CHAIRMAN. We do not understand that you have undertaken to make the utilitarian feature exhaustive?

Doctor GALLOWAY. No.

The CHAIRMAN. But simply typical?

Doctor GALLOWAY. Yes; and illustrative.

The CHAIRMAN. Illustrative.

Mr. ZAPPONE. Have you any suggestion to make in regard to the general business of the Department? Do you wish to speak of its growth, or anything in connection with its work?

Doctor GALLOWAY. Aside from the suggestions that I have made in reference to this matter of salaries, I think there is very little that I might add, except one thing that will undoubtedly appeal to the chairman as he goes on with the work. It may appear to one examining the various chiefs of bureaus, as the chairman examines them, that we lack somewhat in continuity of purpose and coordination. These things are accounted for by the enormous growth that we have made in the last eight or ten years, and by the fact that we have practically had to blaze a way through an unknown field.

Mr. SAMUEL. You expect to correct them from this time on?

Doctor GALLOWAY. Yes; we are endeavoring in every way to correct that in our Department. I might add that the Secretary has in the Department a bureau council which meets every month and discusses the affairs of each individual bureau. We discuss what in our judgment is best for the Department as a whole. We are in this way able to get a pretty clear conception of what the other bureaus are doing and to avoid duplication of work. We are also in position to exchange ideas in reference to the improvement of methods, something that we are all, of course, anxious to bring about. In the Bureau of Plant Industry we make a complete overhauling of our methods of doing business two or three times a year, and wherever we can see an opportunity to improve we do so.

As a concrete case, I may say that within the last two or three days my attention was called to the fact that we could cut our work of preparing requisitions in two. We had been in the habit of preparing requisitions in this way: A request for a requisition was prepared in one place and the requisition was based on that request. Now we prepare the request and requisition at the same time and decrease the work one-half. We simply saved one assistant who was engaged in drawing up the requisitions from the requests and put him in the auditing room, where we were very much in need of such help.

The CHAIRMAN. So that you covered the whole ground at one time?

Doctor GALLOWAY. Yes.

The CHAIRMAN. That eliminated the services of one man?

Doctor GALLOWAY. Practically so.

The CHAIRMAN. I infer from what you say that the work of the Keep Commission up to date has been fruitful of very good and judicious results?

Doctor GALLOWAY. Very fruitful; yes, sir. Its work has awakened an interest in the improvement of departmental methods that has never been so awakened before, and I believe that altogether it is going to bring about many changes of value.

I believe that is all, Mr. Chairman, that I care to say.

(Witness: Galloway.)

Mr. SAMUEL. Are the facilities for producing these bacteria sufficient for meeting the demands?

Doctor GALLOWAY. Yes.

The CHAIRMAN. It is not the purpose of the Department to continue that as a commercial proposition?

Doctor GALLOWAY. No; just as soon as we are satisfied that commercial agencies will be accurate and honest in the preparation of the material, we are ready to stop.

The CHAIRMAN. Doctor, we are very greatly obliged to you.

Doctor GALLOWAY. I am thankful to you, Mr. Chairman, for the courtesy that you have extended to me, and I appreciate very much the opportunity of appearing before you.

At 6 o'clock p. m. the committee adjourned.

JANUARY 29, 1907.

(Part of testimony given on above date before Committee on Expenditures in the Department of Agriculture.)

ADDITIONAL STATEMENT OF DR. B. T. GALLOWAY, CHIEF OF BUREAU OF PLANT INDUSTRY.

The CHAIRMAN. Since examining you, Doctor, on the question of the construction of the buildings of the Department of Agriculture, our attention has been called to the act itself, and the contention that is made by some that the act intended to limit the building for the Department to a cost of \$1,500,000, the act authorizing the construction of—

a suitable and commodious fireproof building for the use and accommodation of the Department of Agriculture, including all of its bureaus and offices now occupying rented quarters in the District of Columbia, to be erected on such portion of the grounds, etc.

and in section 3 providing that the cost for the construction of said building complete, including heating and ventilating apparatus, etc., was fixed at \$1,500,000. We would like to examine you a little further with reference to that at this time.

Doctor GALLOWAY. All right, sir.

The CHAIRMAN. We understand that up to date there has been appropriated a million and a quarter of money, the most of which has been expended.

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And that at present nothing except a segment of what is to be later on the full building has been constructed or provided for. In a general way, is that correct?

Doctor GALLOWAY. There are two segments.

The CHAIRMAN. Two segments. And the final construction is to include how many segments?

Doctor GALLOWAY. The final construction may include an indefinite number of segments, as the building has been planned and is being constructed on a unit basis entirely. That is, the plan involves

(Witness: Galloway.)

one structure, but it is being put up in segments, each of which is complete in itself. As the work goes on we could finish it all in another segment, or we could put up a portion of a segment now and a portion of a segment in five, six, seven, eight, or ten years, and so on.

The CHAIRMAN. Then if it were a fact—without stating what the fact is—if it were a fact that the act of February 9, 1903, contemplated a completed building for the Department, with all of its bureaus, at a cost of \$1,500,000, that would hardly authorize the construction of a building in segments, two segments of which were to cost practically a million and a half, would it?

Doctor GALLOWAY. I think it would, sir.

The CHAIRMAN. Now, how could that be done? Assuming that the act did contemplate the construction of a building that would be complete and sufficient for the Department, with all of its bureaus, could it be said that a construction of two segments of a building that would accommodate only a portion of the Department with its bureaus would be a compliance with the provisions of such an act?

Doctor GALLOWAY. No, sir; I think not. That is, assuming that to be the case.

The CHAIRMAN. Yes; assuming that to be the construction. But the view has been that this was not a limitation of a million and a half for the completed building for all those purposes?

Doctor GALLOWAY. No, sir. That is, the view of the Department was to the effect that this was simply an authorization and appropriation to inaugurate the work.

The CHAIRMAN. In other words, to build the buildings in part?

Doctor GALLOWAY. In part.

The CHAIRMAN. When was that conclusion reached?

Doctor GALLOWAY. That conclusion was reached before the passage of this act.

The CHAIRMAN. You could hardly reach a conclusion as to the construction of this act prior to its adoption.

Doctor GALLOWAY. Mr. Chairman, in order to have this matter clearly in your mind, it will be necessary to go back; because if you take the question in the middle it may appear difficult of explanation; but if you will take what preceded this act, that will throw some light on the act itself.

The CHAIRMAN. While we went over that somewhat the other day, I would like to have now, in order that it may appear in the record, every fact involved in connection with this appropriation, so that we can understand just exactly how and why the Department of Agriculture, instead of building a completed building for the Department and all of its bureaus, as would prima facie appear to be contemplated by the act, within the limit of \$1,500,000, is now building two segments of a building, which ultimately must have two or three more segments in order to accommodate that Department and all of those bureaus.

Doctor GALLOWAY. I will set the matter before you in chronological order. On March 2, 1901, Congress passed an act directing the Secretary to have prepared, under his direction, plans for a fireproof building, to be erected on the grounds of the Department of Agriculture. This was a clause attached to the regular appropriation

(Witness: Galloway.)

bill, which was passed and approved March 2, 1901, reading as follows:

To enable the Secretary of Agriculture to have prepared, under his direction, plans for a fireproof administrative building, to be erected on the grounds of the Department of Agriculture in the city of Washington; said plans and such recommendations thereon as the Secretary of Agriculture may deem necessary, to be transmitted to Congress at its next regular session, \$5,000, to be immediately available. Approved March 2, 1901.

In accordance with that act, the Secretary of Agriculture conferred with the Secretary of the Treasury, asking for the cooperation and assistance of the Supervising Architect's Office in securing these plans. The Supervising Architect of the Treasury acted as an adviser to the Secretary, and through his advice a committee was appointed and an outline of plans and specifications was sent out, and, as a result of that, certain architects of the country made formal bids on the building and submitted plans in accordance with this act. Then it rested with the Secretary to decide in this competition; it was a competitive plan.

The CHAIRMAN. That was simply for a fireproof administrative building?

Doctor GALLOWAY. Yes, sir. That matter was finally decided. The plans of Lord & Hewlett, of New York, were agreed upon as most typically illustrating the qualifications of an architect, and in accordance with those plans a bill was drawn (a copy of which I have before me) directing the Secretary to construct such buildings at a maximum cost of \$2,500,000.

The CHAIRMAN. By whom was that bill drawn?

Doctor GALLOWAY. The bill was drawn by the Supervising Architect of the Treasury.

The CHAIRMAN. This advertising, I suppose, was done under the Tarsney Act?

Doctor GALLOWAY. No, sir; it was done under the act of 1902.

The CHAIRMAN. Well, this does not necessarily require advertising, but there is an act—the Tarsney Act—which authorizes the Department to open competition for plans to private architects.

Doctor GALLOWAY. That was carried on, so far as the architects were concerned, practically under that act, but after a little different fashion, the Supervising Architect taking the ground that the Secretary himself had authority to complete the work within his own Department. But it was virtually on the plan of the Tarsney Act. In accordance with that plan, this bill was introduced in the Fifty-seventh Congress, and passed the Senate.

The CHAIRMAN. You will make that bill a part of your statement?

Doctor GALLOWAY. Yes, sir; it failed to pass the House. This was March 24, 1902.

AN ACT For the erection of a building for the use and accommodation of the Department of Agriculture.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of Agriculture be, and he is hereby, authorized and directed to cause a suitable and commodious fireproof building, for the use and accommodation of the Department of Agriculture, to be erected on such portion of the grounds of the Department of Agriculture belonging to the United States as he may deem expedient, said building to be constructed in accordance with the approved plans heretofore secured in pursuance of the provisions of the act

(Witness: Galloway.)

of Congress approved March second, nineteen hundred and one, and he is hereby authorized, after due advertisement for proposals, to enter into contracts within the limit of cost hereby fixed and subject to appropriations to be made by Congress, for the erection of said building complete, including heating and ventilating apparatus, elevators, and approaches, and the removal of the present building or buildings of the Department of Agriculture on said grounds.

SEC. 2. That the supervision of the construction of said building shall be placed in charge of an officer of the Government especially qualified for the duty, to be appointed by the Secretary of Agriculture, subject to the approval of the head of the Department in which such officer is employed, who shall receive for his additional services an increase of twenty-five per centum of his present salary, such increase to be paid out of the appropriation for the building herein authorized.

SEC. 3. That the limit of cost for the construction of said building complete, including heating and ventilating apparatus, elevators, and approaches, and the cost for removal of the present building or buildings of the Department of Agriculture, is hereby fixed at two million five hundred thousand dollars, and no contract shall be entered into or expenditure authorized in excess of said amount.

Passed the Senate June 25, 1902.

Attest:

CHARLES G. BENNETT, *Secretary.*

DOCTOR GALLOWAY. The next year the Committee on Public Buildings and Grounds, near the close of the session, brought the matter up in the committee and drafted the bill which is now the law.

THE CHAIRMAN. You mean by that that there was no bill pending before the committee which gave them jurisdiction of this subject-matter?

DOCTOR GALLOWAY. The bill of 1902 was pending.

THE CHAIRMAN. It was still pending before the Public Buildings Committee in the House, not having been reported out favorably?

DOCTOR GALLOWAY. Yes, sir.

THE CHAIRMAN. And in lieu of the bill that passed the Senate they reported the bill which became a law and was approved February 9, 1903?

DOCTOR GALLOWAY. Yes, sir; and in preparing this bill the Senate measure was not considered at all, nor were the plans under which we had worked considered at all. The bill was drafted by the committee, and the Secretary of Agriculture was not called before the committee to make any statement in reference thereto.

THE CHAIRMAN. Does that in any way affect the construction of the act?

DOCTOR GALLOWAY. No; except that while the matter was pending, and before the act was passed, we had certain discussions with the chairman of the committee, Mr. Mercer, who gave the Secretary to understand that it was not the intention of the committee to limit him as to cost in the matter of a building. But this was about the only measure that they could get through at that time.

THE CHAIRMAN. And does the Department rely on this unofficial communication from the chairman of the committee as its justification for that construction?

DOCTOR GALLOWAY. No, sir; not at all. We rely on the act itself, because we think, from the way we have constructed the building, that we are justified by this act here. This act, as I read it, does not make mandatory upon the Secretary to do something that is impossible.

THE CHAIRMAN. Possibly that may be true; but if it does not make it mandatory upon the Secretary to construct a building "for the use and accommodation of the Department of Agriculture, including all of its bureaus and offices now occupying rented quarters in the District of Columbia," and to do it within that limit, what does it do?

(Witness: Galloway.)

DOCTOR GALLOWAY. The act requires the Secretary to erect a building which would bring in all of the laboratories that were paying rent at that time, and that would have been perfectly feasible at the time the act was passed.

THE CHAIRMAN. The language of the act would seem to include everything under the Department in the District of Columbia, would it not?

DOCTOR GALLOWAY. That is very true; but the point I am making is this, that the buildings that we are putting up now would have taken care of all the people we had at that time.

THE CHAIRMAN. Yes; but that fact would not authorize you to build it in segments, would it?

DOCTOR GALLOWAY. Not alone; no, sir.

THE CHAIRMAN. Would you have understood from the bill that passed the Senate that it was mandatory upon the Secretary to build a building for the use and accommodation of the Department of Agriculture within the limit of \$2,500,000? In other words, that he could not have built it in sections, but would have had to build the whole building, so that when finally completed it would involve the expenditure of \$2,500,000. Would that be your construction of the bill that passed the Senate?

DOCTOR GALLOWAY. Not necessarily.

THE CHAIRMAN. How could that limit the discretion of the Secretary if that bill did not undertake to do it?

DOCTOR GALLOWAY. The limitation, Mr. Chairman, is not on the building. It is on the ability of the Secretary to get the people within the building.

THE CHAIRMAN. Is it not your idea that the bill called Exhibit C, which passed the Senate in 1902, attempted to provide for a completed building for the Department of Agriculture as one whole project; or is it your idea that that contemplated that the building could be completed from time to time, in segments, so that in the end, when all the segments were completed, you would then have a building for the use and accommodation of the Department of Agriculture?

DOCTOR GALLOWAY. Mr. Chairman, the segments that we are constructing are complete buildings. They are complete within the language here used. The only difference between the buildings that we are putting up and the buildings that have gone up in the District before is that we have a comprehensive, far-seeing plan that can be added to indefinitely. Every time we add to them they are complete within themselves, which is something that, as a strict business proposition, every public building in the District ought to be.

THE CHAIRMAN. Very true; but that does not really answer the question. The question is now, whether, under that act, Congress contemplated, and expressed its intention with such intelligence that the Department should have been advised of the fact that that was the intention, that you would get your building completed, whether in segments or otherwise, within the limit of \$1,500,000, or did the Department understand that they could go on and use \$1,500,000 in segments?

DOCTOR GALLOWAY. That has been our understanding of the situation from the first.

(Witness: Galloway.)

The CHAIRMAN. With the knowledge that the present needs of the Department would require more segments?

Doctor GALLOWAY. Yes, sir; that as the years went on more room was bound to be needed.

The CHAIRMAN. It is one thing, of course, to build a completed building in such shape that later on, in the course of years, if the needs of the Department require it, you could add to that without disturbing its architectural proportions, and another thing to build a building that would not be complete until you had, say, four segments, and only build two for the time being, with the understanding or expectation that you would have to have additional appropriations in order to get your four.

Doctor GALLOWAY. Mr. Chairman, the idea of additional appropriations never entered into this matter at all. It was never considered by the Secretary or by the committee. What we were aiming for and what we have planned to do and have done was to make complete structures, and it makes no difference to the Department so far as the completeness of these structures is concerned whether you ever appropriate another dollar or not. The point is just this—that we are erecting complete structures within the limit of the appropriation. We have built them in the only way that we could have built them to take care of our work. We shall complete them at less expense than if we had put up one monumental structure, as is the usual plan, with a great number of dark rooms absolutely unfit for our purposes.

The CHAIRMAN. And perhaps as the act contemplated. What would you say about that?

Doctor GALLOWAY. We do not know what the act contemplated, except as we read its language.

The CHAIRMAN. How many segments do you say you have now?

Doctor GALLOWAY. Two.

The CHAIRMAN. Will they house the Department of Agriculture and all of its bureaus?

Doctor GALLOWAY. No, sir; not now.

The CHAIRMAN. Did not the Department know that when it put them up?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. You have two segments constructed or in process of construction?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. How much do those two segments lack of filling the demand for the "use and accommodation of the Department of Agriculture, including all of its bureaus and offices now occupying rented quarters in the District of Columbia?"

Doctor GALLOWAY. They lack at this time probably about 40 per cent of taking care of all of our people.

The CHAIRMAN. When did you begin that construction?

Doctor GALLOWAY. We began that construction in 1903.

The CHAIRMAN. And how much did those two segments, in design, then lack of filling that demand?

Doctor GALLOWAY. They lacked very little. We could have taken care of all of our people at that time in the buildings.

The CHAIRMAN. Those two segments would have been entirely sufficient for the use and accommodation of the Department of

(Witness: Galloway.)

Agriculture, with all of the bureaus that were occupying rented space outside?

Doctor GALLOWAY. In 1903.

The CHAIRMAN. Those two segments would have taken care of them at that time?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Of course that throws a little different light on it.

Doctor GALLOWAY. All of my statement the other day as to the growth of the Department since that time bore on this point. I pointed out that owing to the unprecedented growth of the Department the amount of space occupied had increased 60 to 70 per cent since 1903.

The CHAIRMAN. Not in all the bureaus?

Doctor GALLOWAY. For the Department as a whole; that is, we have gone ahead very much faster in our growth than was even contemplated at that time, owing to the new work that has come to us.

The CHAIRMAN. From the standpoint of the Department, the real fact is that when you complete your buildings that you now have in process of construction those buildings, if you had had them at that time, would have answered every purpose that the act contemplated?

Doctor GALLOWAY. That is the point.

The CHAIRMAN. And that now they would fall short 40 per cent, not because the original design was not adequate for the purpose, but because since then the increase in size and business of the Department has been such that 40 per cent more space is needed?

Doctor GALLOWAY. That is it, sir; and, moreover, we are not now "stereotyped," but can go ahead and add to our buildings for twenty years, or as long as the Department continues to grow.

The CHAIRMAN. I would like to have you state a little more in detail what was done in arranging for the construction and location, what it cost to prepare the lot, etc., approximately.

Doctor GALLOWAY. I have before me a detailed statement as to the expenditures. Do you want a statement of the various items?

The CHAIRMAN. Yes. What did the building cost up to the foundation?

Doctor GALLOWAY. That is included in Mr. Stannard's bid of \$1,177,373.

The CHAIRMAN. How far did his bid carry the building?

Doctor GALLOWAY. It completes the building; begins at the bottom and completes it, all except the mechanical equipment.

The CHAIRMAN. But that does not segregate it. Can you give us any estimate of the cost of the preparation of your lot?

Doctor GALLOWAY. There was no expense of consequence connected with the preparation of the lot, because the land was practically vacant. There were only a few old buildings there.

The CHAIRMAN. Was it a feasible place for the building of foundations?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. Have you any idea what the approximate cost of the building was up to the top of the foundation?

(Witness: Galloway.)

Doctor GALLOWAY. I would have to get that from Mr. Stannard's own figures. We have dealings with him, as a contractor, as a whole. These are the several contractors that we are dealing with [showing statement to the Chairman]. This C. H. Sanborn is the mechanical engineer who will put in the heating plant.

The CHAIRMAN. The building is all marble, is it?

Doctor GALLOWAY. Yes, sir; absolutely fireproof with reinforced concrete construction. Every room is a unit of every other room, so that the laboratories will be absolutely interchangeable.

(The witness here produced several photographs of the buildings.)

The CHAIRMAN. What is the direction of these segments in relation to each other?

Doctor GALLOWAY. Right angles.

The CHAIRMAN. What do you contemplate where they intersect?

Doctor GALLOWAY. At some future time we could put in another segment of this kind, or we could put in a building of a different structure, an administrative building, if we see fit; or simply continue the segment on around, forming a double quadrangle, all connected by closed curtains.

The CHAIRMAN. You have not the ground plan?

Doctor GALLOWAY. I have not the ground plan here; no, sir.

The CHAIRMAN. What appearance will the buildings present when completed; a quadrangle?

Doctor GALLOWAY. A quadrangle or double quadrangle, depending on future needs.

The CHAIRMAN. And you now have two sides of the quadrangle?

Doctor GALLOWAY. We now have two sides of one quadrangle and a small portion of another side.

The CHAIRMAN. Have you plenty of ground space for the elaboration of this idea?

Doctor GALLOWAY. We have a short street here [indicating], only two blocks long, which we could cross over. That street could probably be condemned, as we are renting all these quarters here now.

Our representative, Captain Sewell, has been before the Committee on Appropriations from year to year; and our plan was laid before that committee when we asked for our first appropriation. The committee understood what our plans were, or at least seemed to understand them. Up to last year there was never any question raised. Then the Committee on Appropriations called the Secretary before them and discussed certain matters in reference to this act. Our plan was explained at that time just about as I have explained it now.

The CHAIRMAN. In the sundry civil act for 1906 you have this language:

Building, Department of Agriculture: For continuation of construction of buildings for the Department of Agriculture now in process of erection, \$300,000.

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And that was continued, I suppose, so far as the appropriations are concerned?

Doctor GALLOWAY. Yes.

The CHAIRMAN. We understand, then, that you developed this whole plan of construction, under this act of 1903, before the appropriations committee before you started to work out your plans?

(Witness: Galloway.)

Doctor GALLOWAY. Yes; that is, we had worked out our plan, of course, and discussed it when our first appropriation was up for consideration.

The CHAIRMAN. You had had your plans submitted before you started to expend your money under the provisions of the act of February 9, 1903? You developed before the appropriations committee the method of expenditure that you proposed, and the kind of buildings you intended to construct under the act of 1903?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Was that before a subcommittee of the Committee on Appropriations?

Doctor GALLOWAY. I think it was. I did not go before the subcommittee or whatever committee it was; it was Captain Sewall, our engineer, who was before them.

The CHAIRMAN. You have no personal knowledge of that, then?

Doctor GALLOWAY. No, sir.

The CHAIRMAN. Whatever statement was made before the Appropriations Committee was made by Captain Sewell?

Doctor GALLOWAY. By Capt. John S. Sewell, the engineer for the buildings, who each year represented the Department before the Appropriations Committee when the matter of the continuance of the appropriation came up.

The CHAIRMAN. And also when the project was originated, and before you had expended any money under the plans, as you understand it?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Captain Sewell is the officer appointed by the Secretary of Agriculture under the provisions of section 2 of the act?

Doctor GALLOWAY. Yes.

The CHAIRMAN. And, as I understand it, Captain Sewell has been acting in conjunction with a committee of three, of which you are the chairman?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Who are the other two members?

Doctor GALLOWAY. Dr. A. C. True and Mr. Gifford Pinchot.

The CHAIRMAN. Representing the Department of Agriculture?

Doctor GALLOWAY. Yes.

The CHAIRMAN. That is, with reference to details?

Doctor GALLOWAY. Details of the Department's requirements. Captain Sewell has charge in case of the purely technical matters pertaining to the construction work.

The CHAIRMAN. And all matters involving your relations to the Appropriations Committee have taken place between Captain Sewell and the committee?

Doctor GALLOWAY. With the exception of last year, when he was absent, and then the Secretary and myself represented the Department before the committee.

The CHAIRMAN. And that resulted in this appropriation bill for 1906?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Are you going to get these buildings which you now have projected within your limit of appropriation?

(Witness: Galloway.)

Doctor GALLOWAY. Absolutely. We will not spend a dollar over the limit.

The CHAIRMAN. So that, as a matter of fact, in accordance with the original plan, you are going to construct a building that would have been entirely adequate for the purposes mentioned in the act of 1903 at the time when you began the construction and within that limit?

Doctor GALLOWAY. Yes, sir. I might add, in regard to one point in this bill—that is, the removal of the present building—that our engineers, after considering the matter, informed us that we need not reserve any funds in case it became necessary to remove the old building, because the material in the building would pay for its removal.

The CHAIRMAN. What is the occasion for the removal of the old building?

Doctor GALLOWAY. There is no occasion; but if at that time we had had sufficient room to bring everything into the new structure, and it had seemed desirable to remove the old building, which is directly in front of these buildings, the old building could have been removed without drawing on this appropriation at all.

The CHAIRMAN. That is, the material that could be utilized from the old building would more than pay the cost of its removal?

Doctor GALLOWAY. Yes.

The CHAIRMAN. Was there some question as to the location of these buildings originally?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. What was the nature of that controversy, if there was a controversy?

Doctor GALLOWAY. There was some question as to the location. The Department has 40 acres of ground, and the original plan contemplated placing the building about where the present administrative structure stands. When we began to develop the plan it was found that by placing the building there it would interfere with the projected plan for the greater improvement of Washington; that is, the so-called parkway plan.

The CHAIRMAN. It would be out of alignment with the plan which was then being discussed with reference to the ultimate improvement of the city?

Doctor GALLOWAY. Yes, sir; hence we moved the building back to conform to that plan.

The CHAIRMAN. That contemplates the park from the Capitol to the Monument?

Doctor GALLOWAY. It contemplates a parkway, practically 1,000 feet in width, extending from the Capitol to the Monument, with the center of the Capitol as one axis and the center of the Monument as the other axis.

The CHAIRMAN. Does the location of the building, where you have it now, involve any extra expense with reference to the preparation of the lot?

Doctor GALLOWAY. No, sir. The present location is on land that had nothing on it except a few greenhouses and some old frame buildings.

(Witness: Galloway.)

The CHAIRMAN. Someone, I think, suggested to me that the foundation is unusually expensive in that special locality. Is there anything in that?

Doctor GALLOWAY. Not unusually so.

The CHAIRMAN. I mean, unusually so as compared with other feasible places on that lot?

Doctor GALLOWAY. No, sir; it is less expensive than it would have been on the north side. We had borings made on the north side of the lot, and as a result we struck all sorts of difficulties. It would have cost in the neighborhood of \$50,000 or \$60,000 more to build a foundation on the north side of the lot than on the south side.

The CHAIRMAN. Is the north side of the lot the spot that would have interfered with the uniformity of the ultimate plan for the parkway?

Doctor GALLOWAY. No, sir; it could have been put on the north side of the parkway.

The CHAIRMAN. It would have been as feasible, so far as the ultimate development was concerned?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. The position of the Department can be briefly summarized, then, as follows: That the present appropriation will complete the buildings that are now in process of construction; that at the time the contracts were made and the work begun under the bill they were adequate for the uses of the Department as set out in that act, and that as constructed they will not necessarily involve any additional construction in order to make them complete and of perfect utility?

Doctor GALLOWAY. I think that is a very good summary, Mr. Chairman.

The CHAIRMAN. That is your position?

Doctor GALLOWAY. Yes, sir.

The CHAIRMAN. And your idea is that the facts amply justify that conclusion?

Doctor GALLOWAY. Yes, sir; and I would like in conclusion to again emphasize the fact that the buildings for the Department must necessarily be peculiar. Ninety per cent of our work is done in the laboratory. A laboratory to be at all useful must be well lighted and ventilated. Not only is a large portion of our work in the laboratory, but the work is of such a nature as to make segregation imperative. Some of our laboratories are working on tuberculosis, glanders, and other highly infectious diseases; others are working along chemical lines, where the fumes and gases are dangerous and noxious. One problem was to get good light and ventilation, and to so arrange that the people doing the less dangerous work would not be subject to unhealthful or unsafe surroundings. This accounts for the segment plan, the narrowness of our buildings, and the unit scheme of construction. Notwithstanding our difficulties, our buildings are costing us less per cubic foot than nearly all the other large Government structures, and in massiveness, fireproofing, and architectural beauty they will compare favorably with any others in the city.

The committee thereupon (at 1 p. m.) took a recess until 2 o'clock p. m.

(Witness: Galloway.)

[PUBLIC—No. 71.]

AN ACT For the erection of a building for the use and accommodation of the Department of Agriculture.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of Agriculture be, and he is hereby, authorized and directed to cause a suitable and commodious fireproof building, for the use and accommodation of the Department of Agriculture, including all of its Bureaus and offices now occupying rented quarters in the District of Columbia, to be erected on such portion of the grounds of the Department of Agriculture belonging to the United States as he may deem expedient, immediately in the vicinity of the present building, said building to be constructed in accordance with plans, to be procured, based on accurate estimates, providing for the erection of said building, complete in all of its details, as herein described, and within a total cost of not exceeding the sum herein stipulated, and he is hereby authorized, after procuring such plans, and after due advertisement for proposals, to enter into contracts within the limit of cost hereby fixed and subject to appropriations to be made by Congress, for the erection of said building complete, including heating and ventilating apparatus, elevators, and approaches, and the removal of the present building or buildings of the Department of Agriculture on said grounds.

SEC. 2. That the supervision of the construction of said building shall be placed in charge of an officer of the Government especially qualified for the duty, to be appointed by the Secretary of Agriculture, subject to the approval of the head of the department in which such officer is employed, who shall receive for his additional services an increase of twenty-five per centum of his present salary, such increase to be paid out of the appropriation for the building herein authorized.

SEC. 3. That the limit of cost for the construction of said building complete, including heating and ventilating apparatus, elevators, and approaches, and the cost for removal of the present building or buildings of the Department of Agriculture, is hereby fixed at one million five hundred thousand dollars, and no contract shall be entered into or expenditure authorized in excess of said amount.

Approved, February 9, 1903.

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF PLANT INDUSTRY.
OFFICE OF ASSISTANT CHIEF OF BUREAU,
Washington, D. C., February 8, 1907.

SIR: Since our conversation a few days ago relative to the cost of filing official correspondence, I have given the subject considerable thought, and believing that the results of my study along this line would interest you, I take the liberty of inclosing a tabulated statement showing the estimated cost of the press copy-book copy, the loose buff-sheet copy, and the carbon copy.

In addition to the economy in the use of the press copy book, this system has the far more important and, to my mind, the indispensable advantage of preventing the loss and the misplacement of letters, and our answers to letters can be referred to with probably not less than 90 per cent greater ease when copied in the letter book. In our work we have to refer to the letters we write probably fifteen to twenty times oftener than to those we receive. Any member of the force can go to the file room and without assistance consult the copy of the particular letter sought under the present system of copy-book copies, but with loose sheet or carbon copy the services of the file clerk would be required to not only withdraw the correspondence from the files, but also to restore it, as the files would soon be in hopeless confusion unless this were done. A messenger boy can withdraw and restore the copy books with entire satisfaction. The persons who withdraw the books to consult them seldom return them to the file room, but in the many years during which we have used these books none was ever lost. If the correspondence were allowed to lie on the various desks, as do the books, and there is no way to prevent this, some of it would certainly go astray.

Besides the foregoing objections to the loose sheet and carbon copies, the letters can not be filed for two or three days at least after being answered, owing to the fact that author and subject cards must be prepared after the answers are sent out, etc., and frequently, when we are short of help, as is

(Witness: Galloway.)

often the case, a longer time elapses. The difficulty of consulting letters under such circumstances is obvious, and if some of these letters were drawn out for consultation before the index cards were prepared there would be absolutely no evidence in the file room that any certain letter was either received or answered, and its whereabouts, under any circumstances, could not be traced unless a charge system, such as used in libraries, were adopted. Our press copy book is indexed about three times a day, or immediately after a batch of letters is press copied. Moreover, in our work the loose sheet or carbon copy would lack one of the most important advantages of such copies, that is, the binding together of any certain case, as most of our letters cover several subjects, and one subject may be resumed after weeks or months of correspondence with a correspondent on other subjects.

Hoping that I have not intruded on your time by going into details and that these data may be of some assistance in connection with your studies of the filing question, I remain,

Yours, very respectfully,

A. F. WOODS, *Assistant Chief of Bureau.*

Hon. C. E. LITTLEFIELD,

House of Representatives, Washington, D. C.

Comparative estimates of cost of filing with the letterpress copy books, the loose buff sheets, and carbon copies.

Item of expense.	Press copy book.	Loose buff sheet.	Carbon.
1. Cost of material for 15,000 pages ^a	\$36.60	\$34.50	\$27.00
2. Cost of filing space for 15,000 pages ^b.....	.60	25.50	25.50
3. Cost of indexing (outside of author and subject index) 15,000 pages ^c	21.00	0.00	0.00
4. Cost of clerical work in making copies ^d	42.00	42.00	75.00
5. Cost of clerical work in filing 15,000 pages ^e	0.00	131.00	131.00
Total cost of each system.....	100.20	233.00	258.50

^a 1. The cost of the book is \$1.22, the buff paper \$1.15 per ream, carbon \$1.10 per box of 100 sheets (10 copies can be made with one sheet), and of the light-weight paper used for carbon copy 40 cents per ream.

^b 2. A shelf made by carpenter, of ordinary lumber, about one and a half feet long and fifteen inches high, holds thirty books (15,000 pages). It requires a three-drawer vertical file costing \$18, and a transfer file, costing \$7.50, to file 15,000 pages.

^c 3. This estimate is based on a salary of \$720 per annum to index clerk.

^d 4. These figures are based on a salary of \$720 per annum for copying clerk and the press copying of one hundred letters per hour by the two methods first named. In case of the carbon copy, the average of time required for preparation was reached by taking the estimates of eight stenographers and reducing the average by 2 per cent, or 5 per cent. The average salary of the stenographers was estimated at \$1,200 per annum, and it was estimated that the stenographers spend half their time in typewriting.

^e 5. No time is required to file the letter books. A messenger boy can take them from the file room to the office where they are needed and return them to their proper place in the file room. It is estimated that one-fourth the time of a file clerk drawing \$1,000 per annum would be required to withdraw and restore to the files the replies to our letters which it is necessary to consult, and we consult the replies probably fifteen or twenty times oftener than letters received.

BUREAU OF SOILS.

JANUARY 21, 1907.

(Part of testimony, given on above date, before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF PROF. MILTON WHITNEY, CHIEF OF THE BUREAU OF SOILS, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. You are Chief of the Bureau of Soils?

Professor WHITNEY. Yes.

(The witness was here sworn by the Chairman.)

The CHAIRMAN. How long has your bureau been organized?

Professor WHITNEY. Since 1894.

The CHAIRMAN. That is some 12 years. How long have you been at the head of it?

Professor WHITNEY. Since it was organized.

The CHAIRMAN. For the whole time?

Professor WHITNEY. Yes. I will say, however, that the bureau as a bureau has been in existence only about five years. It was formerly a division.

The CHAIRMAN. Were you at the head of the division when it was a division?

Professor WHITNEY. When it was organized; yes, sir.

The CHAIRMAN. And was there any increase of personnel when you changed from a division to a bureau; and if so, what?

Professor WHITNEY. Yes; there was a considerable increase in personnel, the change carrying with it a larger appropriation.

The CHAIRMAN. Was there any increase in the scope of the work?

Professor WHITNEY. There was an increase in the scope of the work.

The CHAIRMAN. What was the original scope of your work from 1894 up to about five years ago, which would be 1901—was it 1901? From 1894 to 1901 it was a division?

Professor WHITNEY. Yes.

The CHAIRMAN. What was the scope of the work from the organization of the division until you changed from a division into a bureau?

Professor WHITNEY. We were making, during that preliminary period, general investigations on the soil in its relation to plant growth, and it was not until the time of the reorganization that we had gotten the methods and the comprehension of the whole scope of soil investigations to a point where we could gradually extend it into the lines that have since been developed. When I took charge of the division

the subject of soil investigations was in a very unsatisfactory shape. Very little progress had been made in the past fifty years since Liebig announced the mineral theory of plant growth and since the German experiment stations had demonstrated the theory of mineral plant growth by their experiments in pot culture and in water culture, which extended from 1865 to 1873. Subsequent to 1873, when the world accepted fully the teachings of Liebig along these lines, very little progress had been made in the further study of the soil and its relations to plant growth.

The CHAIRMAN. And those were the conditions that you found in 1894?

Professor WHITNEY. Yes; those were the conditions I found in 1894 when the work was organized in the Department of Agriculture.

The CHAIRMAN. Can you give a broad differentiation between the scope of the work you were doing in 1894 and that which you began to do in 1901, or when the Bureau was organized?

Professor WHITNEY. In the period between the organization of the division and the organization of the Bureau the Department had continued its investigations, and had brought out the first great generalization that the distribution of plants and native vegetation in any particular region under uniform climatic conditions was dependent largely upon the physical character and condition of the soil, and it was after the recognition of this principle that the soil survey was instituted and has since been built up. We can now determine the general relation of the soil to crops and to native vegetation from the physical character of the soil.

The CHAIRMAN. That is, the chemical components of the soil?

Professor WHITNEY. No, the physical components of the soil determine largely the adaptation of soils to different crops. The actual yield of crops, however, is dependent upon other factors, which up to 1901 we did not understand; and it was to take up and develop the soil survey in its large extent, and to take up these other factors of soil fertility, and to investigate the real cause of the low yield of crops on some of our soils that the bureau has been extending its work in recent years.

The CHAIRMAN. Then, are we to understand that prior to the organization of the bureau the element of soil fertility had not occupied the attention of the division?

Professor WHITNEY. No. The question had been considered by the division, but the work that had been done previous to the organization of the division was not acceptable, and it was felt that it was necessary to expand the investigations through other methods to arrive at the real solution of the problem. It was at this point that the organization was effected.

The CHAIRMAN. What were those other methods? Did they simply involve an expansion of the methods already in existence, or the development of new scientific methods of investigation?

Professor WHITNEY. The work of the Bureau of Soils on the question of soil fertility has been developed along new and original lines, by new and original methods, made possible by reason of the advance in physical chemistry, and through the adoption of new methods and new lines of thought which have been developed in the bureau itself.

The CHAIRMAN. In that respect have you been in advance of the general scientific world, or has the advance been contemporaneous throughout the world on those subjects?

Professor WHITNEY. The advance has been contemporaneous with other lines of scientific work. The bureau has kept abreast of other lines that are developing in the same general directions. Particularly is this so along the lines of physical chemistry, which are being applied now to the solution of many problems. For example, the steel problem, the function of carbon in steel, the solution of which practical problems it is believed now can only be arrived at from the point of view of the physical chemist. In my judgment the time is coming, and will probably rapidly approach, when these new ideas of physical chemistry are going to have a very profound influence on industrial work, not only on metallurgy, but in many other of the applied arts.

The CHAIRMAN. You mean physical chemistry? That is synonymous with the investigation of soils?

Professor WHITNEY. The same lines that we have been depending upon are being applied to the solution of other problems. The matter of the dye industry in Germany, the matter of ceramics in France, have been developed to the high state of perfection which they now occupy for the reason that in these cases the Government itself has maintained laboratories which have directed the work along these new lines of physical chemistry rather than along the old lines of analytical chemistry.

The CHAIRMAN. That is rather in connection with the development of manufacturing industries than the development of agriculture, is it not?

Professor WHITNEY. Yes.

The CHAIRMAN. The illustrations that you have given?

Professor WHITNEY. Yes.

The CHAIRMAN. Your bureau, as I understand it, is confined practically to physical chemistry so far as it may relate to practical agriculture?

Professor WHITNEY. Yes. Now, the study of the soil is quite similar to the study of many of the products of the industrial world. The soil is the material out of which we manufacture not only the food, but the material which we use in many of our industrial lines, and it is the understanding of the soil, the way it acts, and the way it can be used for the production of what we want that lies at the basis of agricultural practice.

The CHAIRMAN. Is not that a very broad definition of soil? It may be perfectly scientific, but I do not understand how the soil is necessarily connected with a manufacturing industry, except as they may be manufacturing from clay or something of that kind.

Professor WHITNEY. No.

The CHAIRMAN. Probably I do not get your idea.

Professor WHITNEY. We must have our cotton, we must have our fibers, and we must have our food products.

The CHAIRMAN. No; I had in mind metal manufactures.

Professor WHITNEY. And we have to produce these on the soil. We want to convert the soil—to use the soil—to produce our food and clothing.

(Witnesses: Whitney, Zappone.)

The CHAIRMAN. That limits it. Your suggestion was limited to these elements?

Professor WHITNEY. Yes.

The CHAIRMAN. Why was it not feasible to continue the work of that bureau or division under the form of a division as distinguished from a bureau?

Professor WHITNEY. Well, for administrative purposes, the work had become so large that it was thought best that the bureau organization should be attached to it rather than the divisional organization.

The CHAIRMAN. Before that, while you were a division, you were in the division of chemistry?

Professor WHITNEY. No; the work was started in the Weather Bureau. I was appointed as chief of the division of agricultural soils in the Weather Bureau under a clause relating to "the study of climatology and its relation to the soil." The work was continued in the Weather Bureau from the climatological side until it was realized that it would be better to take it out of the Weather Bureau and give it a separate organization.

The CHAIRMAN. And then was it put into a division?

Professor WHITNEY. Then it was put into a division.

The CHAIRMAN. And was the division attached to any bureau?

Professor WHITNEY. It was not. There were only two bureaus in the Department at that time—the Weather Bureau and the Bureau of Animal Industry.

The CHAIRMAN. There would not seem to be, prima facie, any close connection between the soil and the Weather Bureau, but I can see where the connection might come in.

Mr. ZAPPONE. It was practically a division in the Weather Bureau. At the time the law was passed I believe there was some doubt as to what scientific bureau of the Department it properly belonged, and the lawmakers finally, of their own motion, attached it to the Weather Bureau. That is my recollection of it.

Professor WHITNEY. At that time it was thought that the physics of the soil, the moisture, and temperature were very important factors in determining the relation of the soil to crops, and the Weather Bureau had, before I was officially connected with the Department at all, provided some means to help my investigations, which were at that time being carried on at the Johns Hopkins University, Baltimore.

The CHAIRMAN. So that this was more or less a development of that meteorological feature?

Professor WHITNEY. It was a direct development of the work I had been doing for the Department through the Weather Bureau.

The CHAIRMAN. Does it cost more or less to do the work of your bureau under the bureau organization than it did under the division organization?

Professor WHITNEY. It costs less.

The CHAIRMAN. And will you explain how you get the economy, or how you did get the economy?

Professor WHITNEY. It costs less for this reason, that with the larger funds at our disposal we are able to do more work with the

(Witness: Whitney.)

organization in Washington than we would do with a smaller appropriation.

The CHAIRMAN. That could be predicated upon both a division organization and a bureau organization, could it not?

Professor WHITNEY. With the bureau organization we have a complete organization in Washington, with a chief clerk and the officials that are necessary and are generally recognized in the bureau organization; and with such an organization as we have, which I think is a very good organization, the work, in my judgment, costs less than it did when I had fewer assistants, and I had myself to take on a good many duties that I now leave to clerks and assistants that are under me. And with any further extension of the work of the bureau, with the organization that we have, we could double or treble, or increase four or five times, the amount of our field work without any corresponding increase in the amount of money that it costs to maintain our central organization. You can understand that with a larger organization you can do work cheaper than you can with a small one.

The CHAIRMAN. If you eliminate subheads and concentrate the work?

Professor WHITNEY. Yes.

The CHAIRMAN. Why should you not have had under your division organization the same personnel that you have now in the bureau organization, and then with the same appropriations that you have now have accomplished the same results?

Professor WHITNEY. That is a matter of executive policy.

The CHAIRMAN. Did your personnel change much when you went from a division organization into a bureau organization?

Professor WHITNEY. It did not, except that we took on additional help through our larger appropriations.

The CHAIRMAN. That is, you had the same assistants?

Professor WHITNEY. I had the same assistants; yes, sir.

The CHAIRMAN. What was your own salary when you were at the head of the division?

Professor WHITNEY. \$2,500.

The CHAIRMAN. And it is now \$3,500?

Professor WHITNEY. Yes. But it also was \$2,500 after the bureau was established.

The CHAIRMAN. It was not raised at once to \$3,500?

Professor WHITNEY. It was not raised at once to \$3,500; no, sir.

The CHAIRMAN. How long has it been \$3,500?

Professor WHITNEY. I think about four years. I am not quite sure.

The CHAIRMAN. It was raised probably the next year.

Professor WHITNEY. It was either the next year or the year after that.

The CHAIRMAN. We have not gone over it far enough, but what is your general rule as to the heads of the bureaus? They get about \$3,500; that is the prevailing salary?

Professor WHITNEY. Yes.

The CHAIRMAN. You have a chief clerk who gets \$2,000. Did you have the same chief clerk when you were in the division?

(Witness: Whitney.)

Professor WHITNEY. I did not.

The CHAIRMAN. Did you have any clerk occupying the same position?

Professor WHITNEY. No, sir; I depended then upon my stenographer.

The CHAIRMAN. Was your stenographer, then, able to do the work?

Professor WHITNEY. That work became too great, and it was impossible without a further division and a further organization to continue the work.

The CHAIRMAN. What were you paying the stenographer at that time?

Professor WHITNEY. I think it was \$1,600.

The CHAIRMAN. Now you have a chief clerk, and clerks of classes four, three, and two, at \$1,800 \$1,600, and \$1,400. Did you have similar assistants under your division organization?

Professor WHITNEY. Yes.

The CHAIRMAN. At the same rate of salary?

Professor WHITNEY. Approximately, yes. I have more now than I had then.

Mr. SAMUEL. You pay your chief clerk \$2,000 a year?

Professor WHITNEY. \$2,000 a year; yes, sir.

Mr. SAMUEL. I notice that the chief clerk of Doctor Wiley's bureau only gets \$1,600. Why the difference in the salaries?

Professor WHITNEY. At the time of the reorganization of the divisions into bureaus the change was made in forestry, plant industry, chemistry, and soils; and in arranging the organization, for some reason, the Bureau of Chemistry did not ask for a place of \$2,000. They had at that time a lady who performed the duties of the office.

Mr. SAMUEL. Was the salary rated on the asking for it, or on service rendered?

Professor WHITNEY. At that time it was on the salaries asked for, because we did not have chief clerks. The organization was effected after the bill was passed.

Mr. SAMUEL. Does your chief clerk do more work than the chief clerk of the Bureau of Chemistry?

Professor WHITNEY. Oh, we have a much larger field of work. We have a great many field parties. Of course I am speaking now of what is. What the Bureau of Chemistry will do if they get this food inspection, and get a much larger appropriation, I can not say. But up to the present year they have had one or two laboratories outside of Washington. But I have some 70 or 80 men in the field constantly. We have field work going on all the year—soil survey parties. They are constantly moving. We have to issue orders and see that they are sent from place to place.

The CHAIRMAN. Do you have any men in your bureau who are on the rolls of any other bureau in any other Department of the Government?

Professor WHITNEY. I have not.

The CHAIRMAN. Have you had at any time?

Professor WHITNEY. I have formerly contributed to the Secretary's office. I believe that is still permissible, but I do not know.

The CHAIRMAN. I beg your pardon; I did not understand you.

(Witness: Whitney.)

Professor WHITNEY. I say I have contributed to the Secretary's office—contributed to helping the Secretary when he needed additional help. That I believe is still permissible.

The CHAIRMAN. Do they get additional compensation?

Professor WHITNEY. No, sir.

The CHAIRMAN. That is what I mean. Do you have any one on the rolls in your bureau who is receiving compensation from the Government for any other service?

Professor WHITNEY. No, sir.

The CHAIRMAN. And never have had?

Professor WHITNEY. Never have had.

The CHAIRMAN. Have you any employees or clerks or agents at work in your bureau who are at work for private parties?

Professor WHITNEY. No.

The CHAIRMAN. Or doing work outside of the Department?

Professor WHITNEY. No.

The CHAIRMAN. And you never have had?

Professor WHITNEY. I never have had, except possibly in case of an article or two that would be written for a magazine.

The CHAIRMAN. Yes; that would simply be an occasional work.

Professor WHITNEY. And except, also, in the case of two or three men that I have had in the bureau formerly who have been allowed to give lectures at the university here in the city—night lectures that did not in any way interfere with their work. But there is no one at present who is doing that.

The CHAIRMAN. Upon what basis is the compensation of the clerks in your Bureau predicated?

Professor WHITNEY. It is predicated in the first instance on the appropriations we get from Congress.

The CHAIRMAN. What do you mean by that?

Professor WHITNEY. Our clerks are all in statutory places, and when we lose a person from a \$1,400 position we have got to pay anyone who occupies that place \$1,400, no more and no less.

The CHAIRMAN. Yes. Upon what basis does your bureau fill those various positions?

Professor WHITNEY. So far as possible we fill them by promotion. Where we have no one in a lower grade of salary that we think competent to take a higher place we call for an original certification, but wherever it is possible we move some person up and call for a certification for the lower place.

The CHAIRMAN. Upon what are the promotions based?

Professor WHITNEY. In the case of the statutory salaries, they are based first upon necessity. We have got a fixed salary in a statutory place that can neither be increased nor reduced, which, from an administrative point of view, is an unfortunate contingency. If we had maximum salaries, if we had any discretion, it would occasionally be possible to get people in at lower salaries, and advance them as their experience and their work indicated, to the maximum fixed by Congress. But that is not the fact that confronts us. When we have a vacancy we look over our force, and we have a small force of clerks. The bureau is small in its central organization. We look over our force to see if we have anyone who is fitted to do a higher grade of

(Witnesses: Whitney, Zappone.)

work or more work; and, if so, we recommend the promotion of that person.

The CHAIRMAN. How do you ascertain that fact, in the case of that particular clerk?

Professor WHITNEY. Well from our efficiency slips, and also from our general idea of the character of the work and the amount of work we have to do.

The CHAIRMAN. What are your efficiency slips?

Professor WHITNEY. We are required to keep efficiency slips in the Department.

The CHAIRMAN. By the Secretary of Agriculture?

Professor WHITNEY. By the Secretary of Agriculture. By law, as I understand it.

Mr. ZAPPONE. Civil service law or regulation?

Professor WHITNEY. The civil service regulations, perhaps.

The CHAIRMAN. Is there a civil service regulation that requires that?

Mr. ZAPPONE. I think so. There was some years ago, and I think it is still in operation.

Professor WHITNEY. If you are going to look into that I would like to say that the use of the efficiency record is somewhat difficult unless you know the person and the kind of work he is performing, because we are expected to rate the efficiency of our clerks and of all of our employees on the basis of the work they are actually performing, of the positions they are really occupying, and we may rate a stenographer at 95, and the clerk who is not a stenographer at 95, and the messenger who knows nothing about the clerk's work or the stenographic work at 95. That does not mean that they are equal and interchangeable; it means that so far as the work that they have been performing, and so far as the positions that they have been occupying are concerned, they have done 95 per cent of what we would call perfect work.

The CHAIRMAN. That is, 100 is perfect, and they reach 95 per cent of being perfect on the kinds of work on which they are engaged?

Professor WHITNEY. Yes; but that efficiency slip can not be accepted without further knowledge of their work on a proposition to promote them.

The CHAIRMAN. How often are those efficiency slips made up?

Professor WHITNEY. Twice a year.

The CHAIRMAN. Are they open to the inspection of the employees?

Professor WHITNEY. They are not; they are transmitted confidentially.

The CHAIRMAN. So that the employees under that system do not really know the basis upon which they are or are not promoted?

Professor WHITNEY. The recommendations for promotion are not based on the efficiency slips. They are, however, taken into account.

The CHAIRMAN. Are they not based in part on the efficiency slips?

Professor WHITNEY. They are based in part on the efficiency slips. These efficiency slips show the minimum efficiency that will in itself bar promotion, even if recommended.

The CHAIRMAN. But suppose it shows a maximum?

Professor WHITNEY. That does not, as I have shown, necessarily mean a large factor in promotion.

The CHAIRMAN. Why should it not?

Professor WHITNEY. Because the character of the work has to be considered.

The CHAIRMAN. Is not the character of the work one of the elements involved in the efficiency slips?

Professor WHITNEY. No, that is not weighted.

The CHAIRMAN. What are the factors that enter into the efficiency slip?

Professor WHITNEY. The factors that enter into the efficiency slip are the questions of punctuality and the amount of work done, and the character of the work done.

The CHAIRMAN. Is not that quality?

Professor WHITNEY. No; that is the character of the work that the person does in the position that they occupy.

The CHAIRMAN. That is true.

Professor WHITNEY. Yes.

The CHAIRMAN. That is one of the factors?

Professor WHITNEY. Yes.

The CHAIRMAN. Is not that the quality of the work?

Professor WHITNEY. No, sir. It does not compare the work done in a stenographic position and the work done in a messenger's position.

The CHAIRMAN. The two are in no sense allied?

Professor WHITNEY. The two are in no sense allied.

The CHAIRMAN. But here you have three stenographers doing the same work?

Professor WHITNEY. Yes.

The CHAIRMAN. And the qualifications of each of those three become the basis of one of these slips.

Professor WHITNEY. In the case of the same type of work, the quality would be recognized.

The CHAIRMAN. Would they control?

Professor WHITNEY. Not in the Bureau of Soils.

The CHAIRMAN. Why should they not?

Professor WHITNEY. Because the character of the work of our stenographers varies greatly.

The CHAIRMAN. Do they not get the benefit of that character when you get these slips made up?

Professor WHITNEY. No; one of our stenographers, or a certain class of our stenographers, we use for dictating letters. Another class in our laboratories are expected to aid greatly in looking up references that are made to literature, to verify citations or quotations. Another class, who are engaged in the preparation of the reports from our field assistants, have to have different qualifications altogether, and a knowledge of the subject that the stenographer who takes the mail does not need.

Now, I can put some of my stenographers on dictation of letters, some of them I can put up in our laboratories, some of them I can put up in our editorial work; but they can not be interchanged.

The controlling factor in the promotion to a position that carries more pay, and which should carry a larger responsibility, is based upon the capacity of the man to perform the duties that will be

expected of him, and I do not know of any administrative office where anything else can safely be taken as a basis for promotions.

The CHAIRMAN. Does not this efficiency method of which you have spoken tend to develop and register the effective capacity of a clerk so that you will have before you in concrete shape what a particular clerk has been able to accomplish, and therefore will be able to determine what his efficiency is?

Professor WHITNEY. The efficiency records that we are expected to keep, I believe, are not primarily kept for that purpose.

Mr. ZAPPONE. Mr. Chairman, the purpose of the efficiency report is to cover all the questions you have advanced. All the elements necessary for a correct understanding of a man's fitness, his capacity and his ability, appear in that report. The quality of his work is rated there. That is one of the elements, as will be seen from the sample "efficiency report" printed in the record.

The CHAIRMAN. I was not getting that impression from what Doctor Whitney said.

Mr. ZAPPONE. Mr. Chairman, I think perhaps Professor Whitney misunderstood your direct question as to the quality of the work. Professor, you will see that it is one of the elements on the efficiency blank; it must be there to determine the man's fitness. [Turning to chairman.] And I also recall that the original order was a civil-service regulation, based upon an Executive order.

The CHAIRMAN. From the Secretary of Agriculture?

Mr. ZAPPONE. No, sir; an order issued by President Harrison. At least, that is how my memory serves me now.

The CHAIRMAN. Do all these reports go through your hands, Doctor, in connection with your bureau?

Professor WHITNEY. Yes.

The CHAIRMAN. So that you ought to be familiar with their details?

Professor WHITNEY. Oh, I am perfectly familiar with the details.

The CHAIRMAN. If they do not accomplish this result of which we have been speaking, should they not be modified so as to accomplish it?

Mr. ZAPPONE. If they do not accomplish the result, but I think you will find all the necessary elements there.

The CHAIRMAN. I want to get the doctor's judgment. If they do not accomplish the results to which your attention has been directed, should they not be, in your judgment, so modified as to accomplish it?

Professor WHITNEY. Perhaps I have been misunderstood, because I did not intend to convey the impression that you seem to have. These efficiency records do count in making promotions, but the difficulty is that they can not be used without a further knowledge of the kind of work that the people are doing.

The CHAIRMAN. Do you mean by that that the personal equation is a factor that necessarily enters into the question of the efficiency of a clerk, and that personal equation, which perhaps can be ascertained only by the man who is over the clerk, does not necessarily appear in that efficiency list, and is only to be derived from the officer having charge of the clerk? I do not know that I get your idea, but that is what I think you mean.

Professor WHITNEY. To a large extent the efficiency of the clerk,

(Witness: Whitney.)

the personal element, does and must enter into the question of the fitness of the person for another position.

The CHAIRMAN. Yes.

Professor WHITNEY. Now, we recognize that in the civil service.

The CHAIRMAN. But how do you get that, from the efficiency slips, or from the man who has immediate charge of the clerk, if you get it at all?

Professor WHITNEY. In my own bureau, which is so small that I know everyone there, the chief clerk and I know the records and know the efficiency and know the capabilities of the clerks that we have, and can judge as to whether they can take up a line of work that we find it necessary to develop. Of course my own is a small bureau. I have only 15 or 20 clerks. The large proportion of my force is scientific workers or field men. I have a very small office organization, and the few people that I have are personally known to myself and to my chief clerk.

The CHAIRMAN. Of course what would apply to 100 men might apply equally well to 10 men, given the same position.

Professor WHITNEY. Not if you had 100 copyists doing nothing but copying. You could get at their capabilities and rate them on the scale of 100 for copying work. Or if you had 100 stenographers taking dictation all the time and answering letters, you could rate them on the number of letters answered. But if you have only three or four stenographers taking letters or three or four clerks doing copying, and two or three messengers and some extra clerks for special work, it is a very difficult thing to rate them on efficiency slips as a basis for promotion to a position which involves a different type of work.

The CHAIRMAN. That is to say, in your bureau, if I understand, there are so few employees that their work is largely diversified, and they are not continued on a particular kind of work, enough of them, to be able to differentiate with success and to rate them for efficiency? Do I get your idea?

Professor WHITNEY. Yes.

The CHAIRMAN. Perhaps I did not have in mind that particular fact of the equation that there were not enough of these men doing the same thing to give you a valuable differentiation between half a dozen men, for instance.

Professor WHITNEY. That is precisely it.

The CHAIRMAN. That makes your testimony intelligible with the rest of the testimony that we have had, because I have not taken into account the fact that you had such a small number.

Professor WHITNEY. Yes; that is correct.

Mr. SAMUEL. On what basis would you promote a stenographer to a clerkship?

Professor WHITNEY. We generally promote from a clerical place to a stenographic place.

Mr. SAMUEL. You just reverse it?

Professor WHITNEY. Yes.

Mr. SAMUEL. I imagined that the stenographers were lower salaried than the clerks.

Professor WHITNEY. No, sir; our stenographers are higher salaried than the clerks.

At 5.30 o'clock p. m. the committee adjourned until to-morrow, Tuesday, January 22, 1907, at 10 o'clock a. m.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
Tuesday, January 22, 1907.

The committee this day met.

Present: Messrs. Littlefield (chairman) and Samuel.

STATEMENT OF PROFESSOR MILTON WHITNEY—Continued.

The CHAIRMAN. Before we leave the subject of the efficiency records and the promotions I would like to inquire whether or not you think it would be wise to have the efficiency records open to the examination of the men, or at least each man having an opportunity to examine his own record for the purpose of keeping him advised as to his standing in the Department with reference to his prospect of promotion?

Professor WHITNEY. I think it would be wise.

The CHAIRMAN. Your idea is that it would tend to improve the morale of the service and increase the efficiency of the men?

Professor WHITNEY. I think it would.

The CHAIRMAN. You stated, if I remember, that the efficiency records that now exist are confidential. Does that apply to your bureau alone, or does it apply to the office of the Secretary of Agriculture also, or are they open to inspection when in the hands of the Secretary?

Professor WHITNEY. My testimony applied only to the bureau itself. After the records pass out of the bureau they are no longer under my control.

The CHAIRMAN. As you understand it, are they open to inspection after that?

Professor WHITNEY. So far as I know, they are. I understand that my testimony is only in regard to the procedure in my bureau itself and not in the Department.

The CHAIRMAN. Is there any substantial distinction between the kinds of work done by the various clerks in your Bureau, that is, in the items of work? Are they all engaged in practically the same work?

Professor WHITNEY. They are not. They are employed on different lines.

The CHAIRMAN. Do you differentiate in the kinds of work between the various classes of clerks; and, if so, how?

Professor WHITNEY. We have, in the first place, an editorial clerk, a map clerk, stenographers, typewriters who are not stenographers, draftsmen, general clerks, a property clerk, a photographer, a messenger, and a messenger boy.

The CHAIRMAN. You have four classes of clerks, beginning at one and going up to four. Are those clerks all engaged in doing the same

(Witness: Whitney.)

thing? If they are not, give us, if you can, the kind of work that one clerk does that another clerk does not do.

Here is a differentiation between the clerks in the matter of salary. What I want to get at is whether or not a clerk in the higher class does a different kind of work from that done by the man below him, or whether he is more efficient in the same work, for the purpose of getting at the basis of the differentiation in salaries paid.

Professor WHITNEY. There is a difference in the character of the work. Of course, our typewriters or our clerks would not go into the same class of work as our stenographers. Our stenographers, however, are paid different salaries, according to the general efficiency of the stenographer. We have them from \$840 to \$1,400, and they are graded according to their efficiency. That is fixed by the statutory clause.

The CHAIRMAN. But their standard of efficiency is not fixed by law?

Professor WHITNEY. No, sir; the standard of efficiency is fixed in the Bureau and in the Department, subject to the Department's records.

The CHAIRMAN. And the distinction between the grades, so far as the duties to be performed are concerned, is not fixed by law?

Professor WHITNEY. To a certain extent, yes. Our photographer is a statutory place. The draftsmen are statutory places, and we can not put a stenographer or a typewriter into a draftsman's place. There are certain limitations that are imposed by statute.

The CHAIRMAN. That does not apply to your clerks?

Professor WHITNEY. I am including these in my clerks.

The CHAIRMAN. They are not called clerks in the list of expenditures.

Professor WHITNEY. They are in statutory places. All clerks are in statutory places. That is the basis of this distinction. All our scientific employees are on the lump fund. All the statutory places we class as clerks.

The CHAIRMAN. You have clerks beginning at \$600 and running up to \$1,800?

Professor WHITNEY. Yes; the \$1,800 place is held by an editorial clerk and a similar place by a map clerk.

The CHAIRMAN. Do any clerks below \$1,800 have anything to do with the editorial and map work?

Professor WHITNEY. We have to assign clerks to assist in the preparation of the manuscript that comes in from the field parties.

The CHAIRMAN. But no other clerk as head?

Professor WHITNEY. No, sir.

The CHAIRMAN. So that differentiates his work?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. How about the \$1,600 man?

Professor WHITNEY. I have a \$1,600 man in my own office to take charge of the executive work. He is virtually a private secretary to look after the office.

The CHAIRMAN. He does all of your confidential and official work relating to the Department, and works out the executive details?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. And there is no other clerk who has anything to do with that kind of work?

Professor WHITNEY. No, sir.

The CHAIRMAN. You have two clerks at \$1,400 each; what do they do?

Professor WHITNEY. One of those, as I have stated, is assigned to the editorial branch to assist.

The CHAIRMAN. What is he; a stenographer?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. Does that require any expert stenographic ability?

Professor WHITNEY. Yes, sir; it requires an expert with a knowledge of editorial matters and a knowledge of affairs, because he assists in the preparation and virtual rewriting of the reports that come in from our men in the field.

The CHAIRMAN. Does he take dictation?

Professor WHITNEY. He takes dictation in part and he also does a considerable amount of editorial work under the direction of the editorial clerk.

The CHAIRMAN. What does the other \$1,400 man do; what kind of work?

Mr. ZAPPONE. Mr. C. W. Baumann is the next one.

Professor WHITNEY. He has since been raised.

Mr. ZAPPONE. But speaking of last year, 1906.

Professor WHITNEY. He is my map clerk who has charge of the manuscript maps that come in from the field and he has supervision over the two draftsmen, and he has charge of all records pertaining to the maps of the soil surveys.

The CHAIRMAN. When the work goes out from his hand it is complete?

Professor WHITNEY. Yes, sir; it is complete and it goes to the printer.

The CHAIRMAN. The man at \$1,800 has nothing to do with the maps?

Professor WHITNEY. No, sir; he has to do with the reports. He has to do with the reports on the areas, but they work in close cooperation, because the map has to be read back to the report and the report has to be compared constantly with the map. So the two men are virtually in charge of two independent lines reporting to me direct, but they are working always in close cooperation.

The CHAIRMAN. What kind of work do the \$1,200 men do?

Professor WHITNEY. They are virtually our stenographers. Have you the list, Mr. Zappone?

Mr. ZAPPONE. The first one is Mr. Hale.

Professor WHITNEY. He is a stenographer.

Mr. ZAPPONE. The next one is G. B. King.

Professor WHITNEY. He is a clerk.

Mr. ZAPPONE. The next one is G. B. McGinty.

Professor WHITNEY. He was a stenographer in the bureau, but has since been transferred to the Bureau of Animal Industry.

Mr. ZAPPONE. The next one is V. B. Newton.

Professor WHITNEY. She is a stenographer.

Mr. ZAPPONE. Here is a position filled by two people during the same year—Scott and Weir.

(Witnesses: Zappone, Whitney.)

PROFESSOR WHITNEY. They are stenographers.

MR. ZAPPONE. The next one is Jeannette Steuart.

PROFESSOR WHITNEY. She is a clerk.

THE CHAIRMAN. She is not a stenographer?

PROFESSOR WHITNEY. No, sir; a typewriter.

THE CHAIRMAN. Are all these stenographers also typewriters?

PROFESSOR WHITNEY. Yes, sir; the distinction is that a typewriter does not do any stenographic work—can not take dictation. Miss Steuart, as a matter of fact, is in charge of the catalogue of our soil samples, and keeps the records of the samples that come in. We have a very large collection of soil samples, amounting to about 15,000 in number, and the records of where they were collected have to be kept carefully.

THE CHAIRMAN. You have to preserve the identity of the samples?

PROFESSOR WHITNEY. Yes, sir; and to file a record of any examination that is made of the samples. She has charge of all that work.

THE CHAIRMAN. What do the stenographers do; simply take dictation and then transcribe it on the typewriter?

PROFESSOR WHITNEY. Yes, sir.

THE CHAIRMAN. Is that correspondence, or what is it?

PROFESSOR WHITNEY. Correspondence and the preparation of technical reports and bulletins. We have a stenographer assigned to our laboratory and have a stenographer assigned to the soil survey division and to the other branches of our work.

THE CHAIRMAN. Does it keep those three men engaged taking dictation and transcribing in these departments?

PROFESSOR WHITNEY. Yes, sir; it takes all their time. We are working with a small force, a very efficient force, and we get a great deal of work.

THE CHAIRMAN. How many men dictate to the stenographers; more than one to each stenographer?

PROFESSOR WHITNEY. Yes, sir; one stenographer is assigned to the laboratory where we have five or six men who dictate directly.

THE CHAIRMAN. So that during the day he may be given dictation from each one of those five or six men?

PROFESSOR WHITNEY. Yes, sir.

THE CHAIRMAN. In transcribing, do they use the graphophone?

PROFESSOR WHITNEY. No, sir; they do not.

THE CHAIRMAN. Each stenographer transcribes his own dictation on the typewriter?

PROFESSOR WHITNEY. Yes, sir.

THE CHAIRMAN. Has there been any increase in the personnel of your bureau during the last two or three years, or, I will say, since the bureau was organized, to any extent?

PROFESSOR WHITNEY. Well, I think not in the statutory places. Perhaps there have been two or three different places added. I am not quite sure. Not more than two or three.

THE CHAIRMAN. You had an unexpended balance September 30, 1906, of a little over three thousand dollars?

MR. ZAPPONE. \$2,867.28. That is the amount that will ultimately be turned back into the Treasury.

PROFESSOR WHITNEY. Is that the final amount?

(Witnesses: Zappone, Whitney.)

MR. ZAPPONE. Yes, sir. On September 30 you had outstanding liabilities amounting to about \$230 in round numbers. They were all the outstanding expenses you had.

THE CHAIRMAN. You have a larger force outside of Washington than in Washington?

PROFESSOR WHITNEY. Yes, sir.

THE CHAIRMAN. Has there been any addition to your personnel under the lump-fund appropriation?

PROFESSOR WHITNEY. Yes, sir.

THE CHAIRMAN. To what extent?

PROFESSOR WHITNEY. Well, that would depend, of course, upon the size of the appropriation. Here is a list of the appropriations that we have had since 1896.

THE CHAIRMAN. What was your appropriation for 1901? That was when the bureau was organized.

PROFESSOR WHITNEY. \$31,300. Next year, 1902, we had an appropriation of \$109,140; in 1903 it was \$169,680; in 1904 it was \$212,480; in 1905 it was \$214,680; in 1906 there was a drop due to the fact that a number of changes were made from the statutory to the lump-fund places. It was not restored to the lump-fund roll. That year we had an appropriation of \$204,680, \$10,000 less than the year before. In 1907 we had an appropriation of \$221,460.

THE CHAIRMAN. The appropriation in your bureau is expended almost wholly in salaries, transportation, and traveling and field expenses?

PROFESSOR WHITNEY. Yes, sir; a large part of it is for laboratory work.

THE CHAIRMAN. Do you have a separate laboratory here in Washington; that is, separate and distinct from the Bureau of Chemistry?

PROFESSOR WHITNEY. We have several laboratories.

THE CHAIRMAN. In Washington?

PROFESSOR WHITNEY. In Washington.

THE CHAIRMAN. Would it be economy to unite these laboratories under one head in your bureau, and instead of having several to have one large, comprehensive laboratory?

PROFESSOR WHITNEY. No; for the reason that the work is entirely different and the personnel and the requirements are altogether different.

THE CHAIRMAN. What is the difference?

PROFESSOR WHITNEY. We have a laboratory for soil chemistry, we have a laboratory for soil physics, we have a laboratory for soil fertility, and we have a laboratory for the fertilizer requirements of soils.

THE CHAIRMAN. That is four?

PROFESSOR WHITNEY. That is four.

THE CHAIRMAN. Do not all these investigations articulate with each other?

PROFESSOR WHITNEY. Yes, sir.

THE CHAIRMAN. And involve necessarily the same subject-matter?

PROFESSOR WHITNEY. To a certain extent; yes.

THE CHAIRMAN. Is it feasible for a chemist when he is making an analysis for any one of these allied questions to complete his investi-

(Witness: Whitney.)

gations and cover the ground that would be involved in one or two or more of those questions?

Professor WHITNEY. No, sir.

The CHAIRMAN. Why?

Professor WHITNEY. He knows nothing of the subject-matter.

The CHAIRMAN. Why should he not? Could he not?

Professor WHITNEY. We have physicists and we have connected with the Bureau physiological chemists.

The CHAIRMAN. Assuming that you had a man who did know, who was familiar with each of these three lines of investigation—that might be assuming the impossible, I do not know how that may be—a man who had scientific knowledge and experience to make and conduct experiments along those lines, when he is making his analysis could not he cover three of those cognate subjects all at one time?

Professor WHITNEY. In that sense I am the director of the laboratories myself and harmonize those various lines. The assistants in the laboratories have been specialists along narrow lines.

That is the most efficient way in which such an administration can be conducted. They are my advisers. They consult freely. They report directly to me and I keep informed of the progress of the work in these several laboratories, and where I see any need of it I bring two or three of them together in the solution of a single problem.

The CHAIRMAN. All these investigations are based on the soil; they begin on the soil and radiate out?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. Is it a fact that an analysis of what is necessary in connection with determining the character of the soil involves some of the same work that would also be involved in determining the question of the proper fertilizer to be used for the soil. Do you not have to travel the same ground in each case?

Professor WHITNEY. No. Where such a contingency comes up, where analyses are required in one of the other lines of work, they are done in the other laboratory. That is where I bring them together and put them together. That is, we do not duplicate the work in these several laboratories, but use the laboratories irrespective of this conventional distribution, where their efficiency will justify it.

The CHAIRMAN. During the analysis of the physical character, to reach the results in regard to it, they go through certain well recognized chemical steps. Having reached that result, if you wanted to examine that same soil to ascertain what was necessary as an artificial fertilizer for that soil, could you use the facts that you had already developed in determining the character of the soil?

Professor WHITNEY. It would be an important aid.

The CHAIRMAN. Do you not have to go over the same steps?

Professor WHITNEY. No. It would be an important aid; but the determination of the fertilizer requirements of the soil would be done by different methods.

The CHAIRMAN. Is the foundation of the analyses different?

Professor WHITNEY. The foundation of the examination is different, and the character of the examination is different.

The CHAIRMAN. If you take a sample of soil and want to ascertain the physical components of the soil, and then you had a sample of the

(Witness: Whitney.)

soil and wanted to ascertain what was a necessary fertilizer for that soil, you would reach those two results in two different ways, and in different steps?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. There would be no process in one case that was known to the other?

Professor WHITNEY. Not at all.

The CHAIRMAN. You would proceed from a different point of view and use different chemical agents and different chemical processes?

Professor WHITNEY. Precisely.

The CHAIRMAN. So the fact that a man had gone through that analysis of the soil for the one purpose would not necessarily lessen his labor if he wanted to get the results in connection with the other purpose from the same sample of soil?

Professor WHITNEY. I do not think I quite understand that question.

The CHAIRMAN. Suppose your chemist had reached the result that he had undertaken to determine, the physical components of the soil?

Professor WHITNEY. The physical components of the soil would be determined in the physical laboratory. The chemical components would be determined in the chemical laboratory and the manurial requirements would be determined by different methods.

The CHAIRMAN. Those three things have no chemical or physical relation to each other?

Professor WHITNEY. They have a relation to each other but are in themselves independent and are arrived at by independent methods.

The CHAIRMAN. Is the physical character of the soil a factor in determining the question of fertility?

Professor WHITNEY. It is a factor in determining the adaptability of the soil to plants.

The CHAIRMAN. Is that a factor in determining what fertilizer is necessary?

Professor WHITNEY. No, sir.

The CHAIRMAN. Is the manurial character of the soil a factor in determining what may be necessary for a fertilizer?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. Those two investigations would be allied?

Professor WHITNEY. They would be allied, but not the same.

The CHAIRMAN. Would the man making one necessarily need to go over some of the steps used to make the other?

Professor WHITNEY. In the examination for the manurial requirements the man would determine nothing as to the physical character of the soil.

The CHAIRMAN. I am speaking of the fertilizer; is that identical with the manurial requirements?

Professor WHITNEY. Yes, sir. A man who determines the physical character of the soil and who does so in the classification of the soil could determine from his examination nothing of the manurial requirements of the soil.

The CHAIRMAN. One is physical and the other chemical?

Professor WHITNEY. One is physical, the other is not chemical.

(Witness: Whitney.)

The examination is conducted by methods which we ourselves have devised.

The CHAIRMAN. The manurial examination?

Professor WHITNEY. The manurial requirements of the soil.

Mr. SAMUEL. A chemist who could reach a conclusion as to the soil could not reach a conclusion as to the manurial requirements?

Professor WHITNEY. No, sir.

The CHAIRMAN. So the results reached in the several laboratories are of such a character that the separate results are of no particular value to the persons engaged in the separate and distinct investigations to an extent which would relieve them of any appreciable amount of work?

Professor WHITNEY. I do not think I quite understood that question.

The CHAIRMAN. Are the results attained in each of these different lines of investigation of any value to the men engaged in those different lines; that is, is the result reached in one line of any value to the men engaged in the other lines?

Professor WHITNEY. Yes; they are necessary for an intelligent understanding.

The CHAIRMAN. Do they avail themselves of the work of these different men, or do they go over the same work themselves?

Professor WHITNEY. They avail themselves of the work of the other men.

The CHAIRMAN. They do not duplicate the work?

Professor WHITNEY. Not at all.

The CHAIRMAN. Then, if I understand it aright, the work of each chemist, so far as it aids another chemist engaged on a cognate subject, is utilized by that other chemist?

Professor WHITNEY. Always.

The CHAIRMAN. And the other chemist does not engage in that same original investigation on his own account?

Professor WHITNEY. Not at all.

The CHAIRMAN. And you have it so arranged as to eliminate all duplication of work on those lines?

Professor WHITNEY. Yes, sir; absolutely.

The CHAIRMAN. What is the character of the work that your Bureau does which requires such a large force outside of Washington, and why is it necessary for them to be employed outside of Washington? Just explain that so that we may understand the necessity for that expenditure.

Professor WHITNEY. The largest piece of work being done by the Bureau is the soil survey, which is done outside of Washington, with the exception of the necessary office work on the preparation of the reports and maps. Out of the \$204,660, \$74,664 is allotted to the soil-survey work. That is expended almost entirely outside of the city of Washington. We have also our tobacco investigation, to which we allotted last year \$23,760.

That is almost entirely expended outside the city of Washington. We have the soil-management work, to which we allot \$19,837, which is to a considerable extent spent outside of the city of Washington. We have the alkali work, to which we allot \$11,520, which is almost

all spent outside of the city of Washington. That is all we spend outside of the city of Washington.

The CHAIRMAN. What is the soil-survey work; what does that involve?

Professor WHITNEY. The soil survey consists of the classification and mapping of the soils of certain areas in the United States. We began first of all in the tobacco areas, under authority to map the tobacco soils of the United States, and that has been continued now for seven years.

The CHAIRMAN. What does that mean, an actual plotting of the surface area covered by the soil?

Professor WHITNEY. The area covered by the soil.

The CHAIRMAN. Do your men make a survey by lines and measurements?

Professor WHITNEY. No, sir. We have the base map. The base map is furnished which involves the distribution of the roads and the measurements and distances. It is obtained from the Geological Survey or from some county maps where they are available. The work of the soil survey consists in plotting on the map according to the distances given of the roads, streams, and houses, and other points of departure shown on the base map, the distribution and location of the soil area.

The CHAIRMAN. Who ascertains the points of departure?

Professor WHITNEY. That is done on the base map.

The CHAIRMAN. Are they ascertained on the surface by your men or are they reported to them?

Professor WHITNEY. They are contained on the base maps that we get from the Geological Survey.

The CHAIRMAN. With the roads and streams and lines?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. Does the Geological Survey give the location of the tobacco soil area?

Professor WHITNEY. No. We take maps that they have put out that happen to fit in the areas we are going to make a soil survey on, and we plat the soil on the base map that they provide.

The CHAIRMAN. How do you get the data from which you make the map?

Professor WHITNEY. The soil data?

The CHAIRMAN. Yes, sir.

Professor WHITNEY. We get that with our own men.

The CHAIRMAN. Do you put your men right on the ground?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. And they locate it on the surface of the earth?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. And you ascertain these points of departure from the base map?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. So the soil survey is really a survey of the soil of the earth for the purpose of determining the tobacco area?

Professor WHITNEY. The tobacco soil.

The CHAIRMAN. Does it involve also a further examination of the soil itself for the purpose of scientifically determining whether the soil is adapted to the production of tobacco?

(Witness: Whitney.)

Professor WHITNEY. Yes, sir. I have here a map of what we call the Syracuse area, showing the distribution of the soils and accompanied by a report which describes the soils and the crop adaptation. The base map, as you will see from the legend at the bottom, was prepared by the Geological Survey. They surveyed the roads and streams and contours, showing the elevations.

The CHAIRMAN. The Geological Survey map is the geologic and topographic map that they issue in parts of the whole United States, so far as that survey has gone, both geologic and topographic?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. And that indicates physical objects such as roads, streams, and the contours of the country?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. You take that as a basis and you go out on the territory itself and put your men on and make an actual survey of the different kinds of soil?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. And then we have indicated upon those maps in different-colored inks the character of the various soils?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. Your survey is not confined to tobacco soils?

Professor WHITNEY. No, sir.

The CHAIRMAN. Is it not intended to furnish the foundation for all sorts of products that are agricultural in their character?

Professor WHITNEY. Yes, sir. We have made similar maps of the sugar beet soil, of the rice soil, of the truck soil of the Atlantic coast and Gulf coast, and the fruit soils of the Gulf coast, and of the mountains, and of the Ozark region, as well as the tobacco soils.

The CHAIRMAN. Do these maps that you have described prove to be of commercial value to the people of the country?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. In what way are they utilized?

Professor WHITNEY. In the case of the tobacco work that has been done in Texas we found in the course of our surveys a soil that closely resembles the best Cuban tobacco soil, and we have demonstrated that a fine type of Cuban tobacco can be grown, and the soil survey has outlined in three counties in Texas and in several counties in Alabama, where the soil also occurs, the exact area and location of the soil upon which Cuban tobacco can be grown, and it can only be grown with success on one series of soil, the Orangeburg soil, and it is useless to try to grow it on any other.

The CHAIRMAN. What peculiar qualities does that soil possess that differentiates it from any other soil?

Professor WHITNEY. That is something we can not answer.

The CHAIRMAN. That is not either physically or chemically determinable?

Professor WHITNEY. It is physically determinable. We can tell the soil when we see it, whether it is in Cuba or in Texas or in Alabama.

The CHAIRMAN. What differentiates it from other soils?

Professor WHITNEY. About the same soil which extends up into South Carolina does not produce tobacco of this same quality, so that

the climate has much to do with the character of the leaf, as well as the soil.

The CHAIRMAN. Does not that tend to indicate that it is a matter of climate rather than soil?

PROFESSOR WHITNEY. No. Under the same climatic conditions in Houston County, Tex., for example, with the same climate extending over practically the entire area of the county, this Cuban tobacco of high quality can be grown on the Orangeburg sandy loam, but it can not be grown on the Houston clay or the Norfolk sandy loam, which may occur in the same area. So the development of this tobacco of high grade is dependent absolutely upon the knowledge of the soil which is shown on the maps.

The CHAIRMAN. How do you distinguish that particular soil from any other soil that is arable? Of course I do not include in that soil that has not any fertility. How can you distinguish that soil from any other soil that is fertile and arable, if I get the right terms?

PROFESSOR WHITNEY. The soil survey has progressed far enough now for us to classify the soils of the United States, and we have found that they can be divided into thirteen soil provinces where the character of the material is unique and will not be encountered in any other province. For example, we have the glacial soils, the loess soils that extend over the Middle West. We have the glacial terraces. We have the Piedmont Plateau, where the original rock has disintegrated in place, and the soil is derived from the rock material. Adjoining that on the east we have the coastal plain, where material that has been derived from the original rock has been transported by water and laid down, forming our coastal plains. That is a separate province. While it is derived from the same material it has been sorted out, and it has been transported from its original location and has been spread out under water and reelevated, and it is essentially different.

The CHAIRMAN. Is that alluvial in its character?

PROFESSOR WHITNEY. No; this is not necessarily alluvial; it is upland now. It was in past geologic times alluvial, but it now forms the uplands with some alluvial included in the coastal plain.

Now, in each of these provinces we have certain series of soil which we do not find in any other province. In the coastal plains we have three or four series of soil that never occur on the Piedmont Plateau and never occur in the glacial areas. So that when we come to the coastal plain of Texas we can eliminate a large proportion of our soil types. We have encountered so far in the United States in the survey of some 250 or 275 areas—including about 45 of the States, and all but one of the Territories—we have encountered 400 types of soil. They are arranged in 53 series, and the series are contained in 13 provinces. That is the whole classification of the soils of the United States. It is a simple classification, far simpler than we expected to find it possible to make in arranging them.

When we come to Texas we know that we are in the coastal plain province. We know the general character of the material, we know how it was derived, and so can cut out a large number of series and types which we know are never found in the coastal plain. So we have there four or five series of soils which we may expect to find,

(Witness: Whitney.)

together with some soils which we have never been able to correlate, which are formed by local action and which have not yet been put into a series.

Now, the series that are likely to be found in the coastal plain are the Norfolk series, which is characteristically a light sandy covering with a yellow sandy clay subsoil. We have the Orangeburg series which has a light to reddish soil with always a red sandy clay subsoil. There is no other soil in the United States that could be mistaken for the Orangeburg series of soil after it was well understood. Then, in addition, we have the Portsmouth series in the coastal plain, which is characteristically a dark-colored soil with a light subsoil, generally very sandy, but very impervious and needing drainage. Then we have the Houston series, which is likely to be encountered, derived from the limestone rock, the sedimentary limestone rock found in the Southern States, a very productive black soil with usually a black subsoil, always more or less sticky and very tenacious.

It is the great cotton soil of the uplands of the South and is the soil of the black belt of the South. It is on these Houston soils that alfalfa is taking such a hold, and it is on that we predict great success for alfalfa in the South. Norfolk soils are characteristically truck soils for the production of our early vegetables.

The CHAIRMAN. Do you look upon the soil survey, the tobacco investigation, the soil management, and the alkali work, for example, as four separate and distinct branches of work?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. And there are four distinct sets of men engaged in that work?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. Is it not possible to have more or less of those combined under one head and have the work of that character done by one man? For instance, your soil survey and soil management, why is it not feasible to have the set of men who do the work of the soil survey at the same time handle the work of soil management?

Professor WHITNEY. They have not had the training, and for administrative purposes it is better to have a separate set of men.

The CHAIRMAN. What is the soil management as distinguished from the soil survey? The soil survey defines the extent of these divers conditions?

Professor WHITNEY. Yes, sir; the soil management tends to the methods of cultivation, the methods of handling the soil, to get the best return. The soil survey men are not supposed to stop to study the properties of the soil or the methods of management.

The CHAIRMAN. They have to get at its qualities?

Professor WHITNEY. Yes, sir; it takes from three to nine months to make a soil survey. We keep our parties in the field the year round. In the summer they are in the northern areas and in the winter they are in the South.

The CHAIRMAN. The soil survey men?

Professor WHITNEY. Yes, sir; I will give you another illustration of the value of the soil survey work.

The CHAIRMAN. Right there. The men who do the soil survey work would necessarily have to ascertain the character of the soil as one of the elements of determining the contents of the area. Why is

it that these men can not at the same time do the soil management work?

Professor WHITNEY. It would not be feasible to have the work done at the same time. It is not possible for us to follow up the soil survey in its progress with soil management work of all the areas that we survey, but on the contrary our soil management work seeks to take up only those difficult problems where there are real difficulties about the production of crops in large areas in the country. We keep them as a reserve to follow up the soil survey in only such areas as their efforts seem to be needed.

The CHAIRMAN. What does the corps of men engaged in the business of soil management do, go right to the location and study the circumstances?

Professor WHITNEY. In the case of large areas which are not producing what they should, and where the management of the soil is evidently not understood, and where it is believed that with proper management or with the understanding of the soil conditions proper methods, if introduced, would largely increase the productive capacity of the soil.

The CHAIRMAN. Does that mean the cultivation and handling of the soil or its fertilization, or both?

Professor WHITNEY. Both.

The CHAIRMAN. Is not that a matter more peculiarly within the scope of the Bureau of Plant Industry?

Professor WHITNEY. No, sir; it is a soil problem. There are soil conditions which prevent the growth of crops, and it is only a soil man and a soil organization that can handle the problem of infertile soil.

The CHAIRMAN. How do your men accomplish that work—by experimental work with the particular soil on the ground?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. For the purpose of ascertaining whether the right methods of cultivation are used or whether additional fertilization is necessary? How do they get the concrete result?

Professor WHITNEY. They go deeper than that. They go down to the area equipped with the necessary apparatus. It may be that we will establish temporary headquarters, if the subject seems to justify it, and have examinations made by our different methods of the soil in the field to see what is needed to improve the soil. It is not a question of planting the soil with crops and the usual plotting experiments which are carried on by the experiment stations. They are doing that admirably, and we are cooperating with the experiment stations in many cases. Sometimes we are doing the work without cooperation. To determine the cause of the infertility of the soil we seek to get to the foundation of the trouble.

Heretofore it has only been possible to use conventional methods of fertilization, plotting experiments, and the Department, through its soil organization, finds it possible now to go deeper and to determine the cause of the infertility and the methods of overcoming it. These methods are then being used by the stations in the further planning of actual and practical plotting experiments.

The CHAIRMAN. That involves, I suppose, the question as to

(Witness: Whitney.)

whether there are present constituent elements that are inimical to the production of plant life?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. Or whether there are absent constituent elements that should be there in order to produce plant life?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. Those two propositions?

Professor WHITNEY. Yes, sir.

The CHAIRMAN. You get at that by physical or chemical analysis, or both?

Professor WHITNEY. By both, and also by other means that we have devised.

The CHAIRMAN. What are these other means outside of physical and chemical examination?

Professor WHITNEY. They involve the study of the presence of injurious substances in the soil. We have technical methods which would be rather difficult to explain here, by which we can determine if there are inimical substances present or whether there is an actual lack of material that is needed by the crops.

The CHAIRMAN. I wish you would take some striking typical instances of soil management, and give us as briefly as you can what you found, and what you did to obviate the conditions that you did find, so that we can get a concrete idea of exactly what your soil management is. Do I make that plain?

Professor WHITNEY. Yes. It is rather difficult to give a concrete illustration of the methods by which we arrive at the conclusions as to the cause of the trouble in a given soil. In the case of some work which is being done on the eastern shore of Maryland, the situation that we found was as follows: With the same fertilizer application, and apparently on the same type of soil, on a farm of 3,000 acres with about 900 acres in wheat, the records show that one of the farms yielded, as I remember it, for last year, 25 bushels of wheat. Of course, I give these figures from memory.

The CHAIRMAN. Yes, of course. Approximations.

Professor WHITNEY. Another field yielded 13 bushels of wheat. Without fertilizers the yield of the poorer soil was much less, but even with fertilizers it has been found impossible to get a satisfactory yield from this poorer soil. One of the methods that we used for determining whether it is a lack of something or the presence of something deleterious in this particular soil—and I am speaking now in very general terms, to illustrate the work—was to take a sample of the soil from the field, from the good field, and from the poor field, and grow seedling wheat plants in small paraffine pots in which the sides of the soil contained in a wire mesh screen is thoroughly impregnated with hot paraffine so as to prevent the roots from getting out of the soil, so as to confine the roots in the soil. With identical pots made in the same way, filled in the same way, with soil of these two fields, we get the same indications in these pots as we do in the field itself, and in this particular case the soil from the good field gave a larger growth of seedling wheat than the soil from the poor field.

It is a very difficult thing to add fertilizers or to add substances to a soil, and know exactly what goes on. We have chemical changes

(Witness: Whitney.)

that may go on; and we have absorption effects which may modify materially the conditions which we think we have changed. That is to say, if we put in a certain amount of sulphate of potash, and think we have that additional amount of soluble potash in the soil, we are likely to be mistaken, because of chemical and physical changes which take place at once in the soil, and make the conditions that actually exist there uncertain and very difficult to understand. We have devised this method of procedure. We have taken out from the soil the soluble material; we have divorced it from the solid constituents of the soil itself, by making an extract, adding one part of soil to five parts of water, filtering this extract through a Pasteur filter, which gives a clear solution, and growing seedling plants by water-culture methods in the extract from the soil.

In the case I am speaking of, the solution obtained from the good soil gave a larger growth of seedling wheat plants in the same time and under the same conditions of temperature and light than the solution from the poor soils.

It is evident, therefore, that the trouble with the soil is not a physical trouble, because we have divested the experiment of all physical attributes of the soil itself; we have taken out the nutrient solution, which the plant feeds on, and when we grow our seedling plants in water culture with the solutions obtained from these two soils, the good soil extract goes ahead of the poor soil extract in proportion as the good soil itself went ahead of the poor soil when the plants were seeded in the soils themselves. That eliminates every possible physical influence of the soil itself, and brings us down to a question of why the nutrient solution in those soils produces in one case a good plant and in the other case a poor plant.

It also brings us face to face with the question whether the poor plant is suffering from the lack of something it needs, or from the presence of something which is positively injurious. If in this case that I speak of, which is a poor soil, you will understand, we take the solution obtained from the poor soil and shake it up with carbon black, finely divided charcoal, obtained by burning natural gas and condensing the carbon, the smoky flame, on a steel cylinder, which contains no plant nutrient whatever, if we shake this solution up with a small amount of this carbon black and filter it off and clarify the solution as we would clarify coffee, by eggshells or other absorbent agents. After we have used these highly absorbent substances in the extract of the poor soil, then we can get as good a growth in that as we do in the extract of the good soils.

The CHAIRMAN. Would the liquid coming from the good soil be treated in the same way?

Professor WHITNEY. In a good soil, what we would call a fine soil, the treatment of the extract with carbon black would have no effect.

The CHAIRMAN. Would be negative.

Professor WHITNEY. Would be negative.

The CHAIRMAN. In this particular experiment did you treat the solution from the good soil with the carbon?

Professor WHITNEY. Yes.

The CHAIRMAN. And then you treated the liquid solution from the poor soil with the carbon?

Professor WHITNEY. With the carbon.

(Witness: Whitney.)

The CHAIRMAN. And you got the same results from the solutions?

Professor WHITNEY. We got identical results with the good solution with or without the carbon treatment, and with the poor solution with the carbon treatment, and the usual poor results with the poor solution without the carbon treatment.

The CHAIRMAN. Yes.

Professor WHITNEY. The only thing that can have happened was the removal of something. That it is not the carbon black is evidenced by the fact that we can use shredded filter paper, that we can use finely divided iron oxide or any of the strong absorbent agents, it is immaterial whether it is of organic or inorganic form, certain colloidal substances would do the same. The idea is that you take something out of the solution and leave it in a healthy condition for plants to grow.

This so far has involved no chemical work, but may be and usually is checked up by chemical examinations, if we think it well to make them, so that we may be sure that there is as much plant food in the one soil extract as in the other. Having determined that this trouble in this particular soil that I speak of is due to something that is deleterious, poisonous, perhaps, to the plant, then the question is as to the most efficient handling of that soil.

Experience shows that the commercial fertilizers, while they are very efficient on the soil, and while they increase the yield materially over the unfertilized portions of the field, still leave that gap between the 13 bushels that is obtained from the poor soil under fertilization and the 25 bushels that is obtained on the good soil. The question then comes down, having found the reason to be the presence of something that is deleterious to the plant, to the treatment. The question narrows down to the most efficient treatment by which these unfavorable conditions in the poor soil can be eliminated, so that the plant can grow normally and produce a satisfactory crop.

In the particular case to which I refer, it was found in the first place that thorough cultivation would do much to oxidize or change the organic substances in the soil; that even if we should keep that soil in a dry condition for two or three months the fertility would increase, so that we would get as strong growth, as large a production, as we did on the good soil, either in the original state or in its dry condition.

The CHAIRMAN. Does that mean storing up the soil, so that atmospheric changes may take place; that is evaporation, so that the soil has opportunity to throw off the deleterious agents?

Professor WHITNEY. Yes; in this case it meant that it was kept in a rather thin layer, and kept dry, so that there was a change in the unfavorable conditions of the soil, in the substances that produced the trouble.

The CHAIRMAN. That is, you did that in your experimental work—you kept the soil dry?

Professor WHITNEY. Yes. That is, sufficient to bring this change about. But in the soil, in its naturally moist condition—

The CHAIRMAN. In the field?

Professor WHITNEY (continuing). In the field, the changes that you would get in a season of excessive drought could not be maintained, and it is therefore necessary to find something to aid culti-

vation in putting the soil into a more favorable condition, and in looking around to see what are the most efficient agents in this case where fertilizers have not done what we think they should—

The CHAIRMAN. What you had a right to expect?

Professor WHITNEY (continuing). What we had a right to expect, where we have an example on the same farm of a field producing 25 bushels without fertilizers and a field producing only 13 bushels with fertilizers—

The CHAIRMAN. How far apart were those fields separated?

Professor WHITNEY. Oh, I do not know; I should say they were an eighth of a mile apart.

The CHAIRMAN. Was there any distinction between them as to being upland or lowland?

Professor WHITNEY. No.

The CHAIRMAN. So far as topography was concerned they were substantially identical?

Professor WHITNEY. So far as topography was concerned they were substantially identical.

The CHAIRMAN. Then there is nothing to indicate the percolation of water in one case that you did not find in the other?

Professor WHITNEY. No; and we have proved by our experiments that the differences were not due to the physical character of the soil.

The CHAIRMAN. Yes.

Professor WHITNEY. In looking around for a more efficient agent, in this particular case, than fertilizers have proved themselves to be, we were able, in the first place, to show the owner of this farm that a brand of fertilizer that was selling for \$14 a ton in his town gave better results than a fertilizer selling for \$18 a ton. We got the indications of that from this method, and he is trying that, and so far as we can see the results indicate that these indications were correct.

But to go back to the fundamental difference between these two fields. They thought—they have had a general feeling—that it might be overcome by the use of lime. Our investigations showed that the soil was not particularly in need of lime, and further trials by the farmers in the same locality bore out the indications of our work that it was not primarily a question of the need of lime.

In looking around, however, for something that would bridge over that difference, we found strong indications that the organic manures, stable manures, and cowpeas were far more efficient on that soil than fertilizers; that with the use of fertilizers and starting with what yields the fertilizers gave, of 13 bushels per acre, that the difference between that yield and the yield from the good soil could be largely eliminated by the use of suitable manure or green manures.

The CHAIRMAN. Now, why was that?

Professor WHITNEY. The organic manures are generally more efficient than the mineral manures. That is so in the examination of the reports of all the plot experiments that have been made by the experiment stations.

The CHAIRMAN. Is that so because the organic manures are what we would term natural manures, and the others are artificial?

Professor WHITNEY. No. No; it is because the organic manure is a strong reducing agent. It incites change in organic matters in the soil by itself changing to the black substance that we call humus.

(Witness: Whitney.)

You will pardon me if I say that it is rather difficult to go into the reasons for some of these scientific facts in a short examination such as I am given, but it is found that the organic manures are composed of bodies that are ready to change over to the humus bodies in the soil; but in order to change, they have got to have organic substances in contact with them from which they can get oxygen, and in getting their oxygen, in order to oxidize themselves, they reduce these compounds in the soil to similar humus bodies.

The CHAIRMAN. Does that produce chemical or physical change?

Professor WHITNEY. That produces very obscure chemical changes, of which we know very little. It is like the use of pyrogallic acid in the development of photographic plates, in the reduction of the silver salts, in which the silver is left as a decomposed product. In the process of reducing the silver, the pyrogallic acid has oxidized itself to a dark compound, whose composition we do not well understand.

Now, the action of organic manures, stable manure, or green manure, cowpeas, or clover, is precisely similar to the action, of course speaking in a general way, and not with a chemical meaning—

The CHAIRMAN. Not with accuracy—technical accuracy.

Professor WHITNEY (continuing). Or with accuracy, is precisely similar to the action of pyrogallic acid on the photographic plate; and pyrogallic acid can be substituted for these green manures or for stable manure and will accomplish the same beneficial effect in the soil—will convert the organic matter of the soil into humus, improving its fertility, only pyrogallic acid is enormously expensive and never can be used on a large scale, but only to study the way the organic manures act.

Now, such action as this appears from all the records we have from the experiment stations to be more positive, to be more certain, to be more lasting, than the results obtained from mineral manures. And while I do not want at all to throw any discredit on the use of commercial fertilizers—I recognize their utility and their value as much as anyone can—still there are times when we have to look for other substances which will be more efficient, and as in the case which I have just spoken of, we find it in the organic substances.

Whether we will ever be able to get organic manures that are less bulky than stable manure, whether we will get organic manures less expensive than the growing of cowpeas for turning under—

The CHAIRMAN. Summer plowing or fall plowing?

Professor WHITNEY (continuing). I am unable to determine; but we are at least getting at the principles of soil improvement, and we are getting at the practical methods of handling particular soils.

The CHAIRMAN. Are the examination and analysis of a soil—all soils—sufficiently practicable so that they could be utilized as a commercial proposition by agriculturalists, and enable them to increase their yield by getting the right kind of manures and fertilizers? That is, is it a practicable proposition commercially?

Professor WHITNEY. The chemical analysis of the soil, as was supposed, would give information that would enable one to properly fertilize the soil.

The CHAIRMAN. To prescribe the necessary nutrition?

Professor WHITNEY. To prescribe the necessary nutrition. But that has entirely failed of its purpose, and chemists generally believe

now—and agriculturalists also, and even the farmers themselves have found after years and years of work involving an enormous accumulation of experience and of data—that it is impossible to judge from the chemical analysis of the soil the productive capacity or the fertilizer requirements.

The CHAIRMAN. So, then, the application of fertilizer to the soil is more or less an empirical matter?

Professor WHITNEY. So far it is.

The CHAIRMAN. And what shall prove to be the best fertilizer, whether artificial or organic, is almost wholly a matter of experiment?

Professor WHITNEY. Of experiment. It is that great question of the fertility of the soil and the management of the soil to maintain its fertility that the Department has undertaken to straighten out.

The CHAIRMAN. Is your soil management general all over the country?

Professor WHITNEY. No.

The CHAIRMAN. In what manner, under what circumstances, do you engage in the work of soil management; on motion of the Department or at the request of individuals?

Professor WHITNEY. On motion of the Department, at present. We are and have been cooperating with a number of the experiment stations in the study of this great problem. We are taking cases of long-continued plot experiments and are bringing our methods and our ideas to bear upon the results obtained from their work. We have a request now from the Pennsylvania State College. They have a series of plot experiments that have been conducted for 25 years, the same applications, and so arranged that the same crop has been grown in these series every year, and they have a system of five-year rotation; but it is duplicated on five different plots, so that every year one crop is grown throughout the period; every year for the 25 years they have a crop of wheat; every year for the 25 years they have a crop of grass, and other crops in rotation.

The CHAIRMAN. Now, there are very striking conditions that have been brought about by the use of fertilizers and treatment in connection with those plots?

Professor WHITNEY. In connection with those plots; and they can not understand them altogether. That is to say, the results of these plot experiments are very difficult to understand. And at their request we are preparing to send a party to Pennsylvania the first of March to work on the soils of these plots by all the methods that we have, to see the actual conditions that are at present shown in the plots that they have been running for so long. Much of our work on soil fertility has been through investigations of that kind, as yet. We have worked in connection with the Ohio experiment station, with Rhode Island, with Cornell.

The CHAIRMAN. Where do you get the public utility from this experiment in Pennsylvania? As I understand it, there is no investigation that you make of any soil that is of any special use in determining the conditions that either promote or hinder results in another soil at a different place.

Professor WHITNEY. Oh, yes. We get that from our soil survey. They have also requested us to make a soil survey of the county in which the experiment station is located. The legislature of Pennsyl-

(Witness: Whitney.)

vania is being asked for an increase of appropriation to build up the university, the college of agriculture, and there is every reason to believe that they are going to exercise a much larger influence than they have in the past, although it has always been a very influential and successful college.

The CHAIRMAN. That extends your investigations beyond the plots. Suppose now you find them investigating the soil fertility or soil management at this particular place, how would the result of the work you might do there be utilized by you in the examination of some soil that you might see out in Illinois?

Professor WHITNEY. Oh, it would not. But it would apply to soils of that same type that we might find in New York, or Maryland, or Virginia, or West Virginia. The investigations we have made on the cecil clay of North Carolina—we have done considerable work there—are applicable in a general way to the cecil clay in its whole extent from Pennsylvania to Alabama, with such local variations only as may be occasioned by the individual character of the farmers.

The CHAIRMAN. So that you find in various sections of the country soils of practically the same general characteristics?

Professor WHITNEY. Yes.

The CHAIRMAN. As to which you can apply the same remedial work?

Professor WHITNEY. Yes, precisely.

The CHAIRMAN. I do not know that you ever find any soil that you do not find duplicated somewhere else?

Professor WHITNEY. No; we have these types and series extending through long stretches.

The CHAIRMAN. And you find the presence of practically the same characteristics?

Professor WHITNEY. Yes.

The CHAIRMAN. So that on examination of a certain soil in one section, if it disclosed the presence of injurious or deleterious elements, if it could be successfully treated in a certain manner, that would indicate that you could so treat that soil if you found it 100 miles away, with the existence of characteristics of the same nature?

Professor WHITNEY. Yes. There are characteristics that apply to the soil in its largest extent. Of course the climate has to be considered.

The CHAIRMAN. Then if I understand it correctly, as you have already stated, this idea of an adequate fertilizer supplying the nutritive elements that are believed to be absent is not now a practicable proposition?

Professor WHITNEY. Well, I would amend that by saying that in addition to the nutritive fertilizer there is great need for other fertilizing materials which will correct other conditions in the soils, and which analyses of the soils have never heretofore revealed.

The CHAIRMAN. Yes; but the idea of making particular fertilizers for particular soils has not proved a success?

Professor WHITNEY. Not in general. It has in specific cases.

The CHAIRMAN. Not so much so that it could be safely adopted as a policy?

Professor WHITNEY. No.

The CHAIRMAN. The question of soil management involves not only nutrition but cultivation?

Professor WHITNEY. Yes. Often it is a question of inefficient cultivation rather than the necessity for adding to the soil.

The CHAIRMAN. Does that involve the question of the depth of plowing and the time of plowing and the manner in which to cultivate during the season?

Professor WHITNEY. Yes.

The CHAIRMAN. All those features?

Professor WHITNEY. Yes. These are questions upon which the Department is working through its division of soil management.

The CHAIRMAN. All those elements of cultivation vary in different soils as to the necessity of more or less thorough cultivation?

Professor WHITNEY. Oh, yes. Our different soils require very different treatments. In Germany, where they have specialized much more than we, where they have had to specialize, a farmer who can handle a clay soil is never engaged on a farm where there is a sandy soil. A man who knows how to cultivate and handle a sandy soil and be very successful, may make a great failure on a clay soil. Now, in this country we have not recognized that.

It has not been forced upon us. We have not had the stress of circumstances and the crowded population that they have in some of the European countries. But there—where they have to make things pay, where they must get the most from a small plot of land, where they are often compelled to do their reaping and harvesting with sickles where we use our scythes and machines—there is it necessary for them to know how to handle their soils, and the methods which they use on their sandy soil, their loams, their clay soils, and their moor soils are very different, and essentially different, so that a man who has been raised as a manager or overseer on one of these farms would never be employed on a farm with a different character of soil.

The CHAIRMAN. Is not that whole thing a matter of practice rather than of scientific development?

Professor WHITNEY. Well, it has not been a matter of either in this country.

The CHAIRMAN. I mean in Germany?

Professor WHITNEY. No, sir. The German experiment stations have contributed to that. The German experiment stations have been forced to take up those questions—many questions which we as yet do not see.

The CHAIRMAN. When it comes to the mere question of handling the soil in the manner in which you describe and the utilization of men familiar with the particular soil, has the scientific factor been dominating or controlling?

Professor WHITNEY. Yes; they have been forced to rely on the stations. The stations were organized for this purpose, and the yields have been constantly increasing.

The CHAIRMAN. So that these methods of cultivation to which you have referred are not only the result of practice, but of the coordinate scientific direction?

Professor WHITNEY. Decidedly so.

(Witness: Whitney.)

The CHAIRMAN. Although it does not involve the application of fertilizer or the knowledge of chemical conditions, necessarily, but simply results.

Professor WHITNEY. Results.

The CHAIRMAN. And you say that has involved a dominating participation by the scientific branch?

Professor WHITNEY. Yes; supported by the Government and the farmers in cooperation.

The CHAIRMAN. Yes; of course you must have the practical cooperation?

Professor WHITNEY. Yes.

The CHAIRMAN. Doctor, can you give, concretely and briefly, any statement showing the commercial value of the investigations that your bureau has been making, to the agriculture of the country, or to the country at large?

Professor WHITNEY. It is rather difficult to estimate the value of the soil survey. We do not as a rule have any way of getting at the commercial value of such work as the supplying of information to a locality as to the soils and the general crops that they can grow; but we know that the demand for these maps is very great. We have a great many demands for the maps. The Department has a thousand copies of each of these advance sheets such as I showed you here, and we hold those in reserve, the Representative in each district getting 2,000 copies for local distribution. Our demand comes to a large extent from people outside of the area seeking information. For example, you will be interested to know that we have many inquiries from the Iowa farmers, from the Illinois farmers, who own lands that are valued now at \$100 or \$200 or \$250 an acre, who find that the investment is too much for them to carry, for cheaper lands in the South, in Alabama, Georgia, Virginia, Maryland, and Delaware.

There is a great movement involving the sale of the high-valued Iowa farms and the purchase of cheap lands, \$10 an acre in the less developed portions of the South or of the Atlantic coast, generally with the view of going into special industries of which they have been informed. They buy their lands for \$10 an acre, and then they have the remainder as a working capital, and this movement is very large in this country at the present time.

The CHAIRMAN. You simply point out to these people the localities for which they may be looking?

Professor WHITNEY. They make a request usually on us for a soil survey of Escambia County, Fla., or Blount County, Ala. They have heard that there are certain industries there. They may want to go into fruit or into truck or into tobacco, and they hear, perhaps through some commercial agent, that they can raise such and such things in Florida, or in Georgia, or Alabama. They ask the Department if we have any soil surveys in a list of counties that they give, so that they can see the character of soil there and the industries that are likely to be successful. These reports give an unbiased and authoritative statement of the character of the soil.

Now, it is hard to estimate the value of that to the changing population that we have. In the case of the investigation of the tobacco soil of Texas, when we took this matter up about four years ago, or

made inquiries as to the value of these lands in eastern Texas, I knew then what lands we were going to find success on. We had gone far enough for that. But I made careful inquiry and found that you could get any quantity of the land for \$1.50 an acre.

The CHAIRMAN. That was suitable for what?

Professor WHITNEY. For this Cuban tobacco. Of course, when you make inquiries in regard to such matters they always want to get you to take options and things of that kind, and I went right through the country looking into that very matter. I wanted to see how large a body of soil there was, and what it was worth. The soil survey has been extended now over three counties of the tobacco district of Texas, and to-day you can not purchase land for less than \$10 an acre, and much of it is held at from \$20 to \$50 an acre, and I believe that is the direct result of the surveys that have been made and the attention that has been called to the possibility of raising the Cuban tobacco and truck and fruit crops in this area.

Mr. SAMUEL. Is that information given in advance to any persons?

Professor WHITNEY. Never.

Mr. SAMUEL. Or to the public in general?

Professor WHITNEY. It is never given out until the report is published for public distribution.

Mr. SAMUEL. There is no possibility, then, of any specially favored persons receiving information for speculative purposes?

Professor WHITNEY. Never. The bureau has carefully guarded such matters.

The CHAIRMAN. To how many acres does that proposition apply?

Professor WHITNEY. It is not acres, it is square miles.

The CHAIRMAN. There has been an increase in value of something like ten times during the last few years?

Professor WHITNEY. Yes, without question.

The CHAIRMAN. If it is square miles, what would that aggregate in acres?

Professor WHITNEY. There are three counties, 1,000 square miles in each.

The CHAIRMAN. There are 640 acres to the square mile?

Professor WHITNEY. Yes.

The CHAIRMAN. That is nearly 2,000,000 acres?

Professor WHITNEY. Yes. The Orangeburg soil does not extend over all these counties.

The CHAIRMAN. If it has increased ten times that would be twenty millions of money?

Professor WHITNEY. Yes.

The CHAIRMAN. I was getting it down to money, dollars and cents.

Professor WHITNEY. Yes.

The CHAIRMAN. Of course, this is only an approximation?

Professor WHITNEY. Yes. For me this is a matter of general information. For you it would be an interesting fact. The estimated annual value of the information furnished by the Bureau of Soils during the past year, in the report on soil surveys, of the adaptation of soils to crops, and the methods of handling soils to produce the largest returns, is \$6,000,000.

The CHAIRMAN. Let me ask you this further question. With reference to soil management, which involves investigation and instruc-

(Witness: Whitney.)

tions as to how to handle particular soils, I would like to have you make it clear whether the Department selects the localities where that work is done, or whether your attention is directed to these localities by complaints that you receive from those localities disclosing conditions that need to be remedied. That is, what is it that directs your investigations?

Professor WHITNEY. The experience gained in our soil surveys.

The CHAIRMAN. You learn the existence of these conditions when your parties are out making the soil surveys?

Professor WHITNEY. Yes.

The CHAIRMAN. And then you follow that up with the men who instruct in relation to the soil management?

Professor WHITNEY. Yes; we have that matter well in hand from the extensive soil survey work.

The CHAIRMAN. And the soil survey men get into contact with men locally?

Professor WHITNEY. Yes.

The CHAIRMAN. And they learn these conditions from contact with the people locally?

Professor WHITNEY. Yes.

The CHAIRMAN. And that is reported to the Department?

Professor WHITNEY. Yes.

The CHAIRMAN. And as a result of these reports you investigate the conditions where you think they need it the most?

Professor WHITNEY. Yes.

The CHAIRMAN. So that one branch of your investigation, so far as its executive operation is concerned, articulates with the other?

Professor WHITNEY. Yes.

The CHAIRMAN. You have not made any special statement about the alkali work. I suppose that is practically on all fours with soil management? That is, you know where the alkali soil is—

Professor WHITNEY. From the soil survey, again.

The CHAIRMAN. Yes; from the soil survey, and then you go and make your investigations with reference to controlling the conditions there, so as to make that soil productive?

Professor WHITNEY. Yes.

The CHAIRMAN. That is another phase of soil management?

Professor WHITNEY. Yes.

The CHAIRMAN. You simply refer to that as "alkali work," because of its large quantity, and as differentiating it from your work generally?

Professor WHITNEY. Yes; it is a special phase.

The CHAIRMAN. Have you been successful to any extent in counteracting the alkali conditions?

Professor WHITNEY. Very. We have made a complete and comprehensive study of that situation, and have been able to reclaim some of the worst alkali lands.

The CHAIRMAN. Is that done by cultivation or by the introduction of chemical agents?

Professor WHITNEY. It is done by cultivation, by proper irrigation, and where necessary by efficient underdrainage.

The CHAIRMAN. And that eliminates the alkaline quality?

Professor WHITNEY. Yes. And we are sure now—we can speak with emphasis—that the alkali problem can be easily controlled.

The CHAIRMAN. That is predicated on the fact that the alkali lands are situated where they can be treated by irrigation?

Professor WHITNEY. If they were not, they would not be of any interest or value.

The CHAIRMAN. Irrigation is an essential feature of your reclaiming the alkali lands?

Professor WHITNEY. Yes. The estimated annual value of the tobacco work done by the Bureau of Soils in the various States, when the industries and new methods shall be fully established, is about \$2,000,000.

The CHAIRMAN. As illustrative of the concrete results following from the work of your bureau you have shown us what you think is one of the finest cigars manufactured anywhere in this country out of domestic leaf, which has a Connecticut wrapper and a Texas filler?

Professor WHITNEY. Yes.

The CHAIRMAN. You may state just in a word whether or not the production of those special qualities of tobacco is attributable to the work done by your bureau.

Professor WHITNEY. Yes. In the case of the Connecticut tobacco, when the soil survey was made of the Connecticut Valley in 1899, a study was made of the tobacco industry and of the tobacco soils. It was found that the soils approached very closely, so far as we could determine, the soils of Sumatra; that the Connecticut leaf was the only domestic leaf that approached the Sumatra leaf in quality at all; that there were obvious defects in the Connecticut leaf, and that it was inferior in many ways to the Sumatra.

The Bureau of Soils felt that with the soils that were available it would be possible on some of those soils to change the character of the Connecticut leaf and make it approach more nearly the Sumatra style, which is at present in great favor in this country. That has been accomplished after a considerable effort and after some rather disappointing conditions that we had to confront. We have unquestionably developed a plant on the soil that was picked out in 1899 that approaches closely the Sumatra style, with the main characteristics, but not with all the finish of the imported leaf. A few years later in making a soil survey in Texas we encountered a soil which appeared to be similar to the Cuban tobacco soil of the best districts of Cuba. They had previously raised some tobacco in general over eastern Texas, and had met with a measure of success. I had myself collected for the Paris Exposition samples from all parts of Texas, and in some of these I found an excellent quality that approached the Cuban tobacco closely.

As a result of our soil survey and getting the location of these soils it seemed evident that we would be able to correlate the fine-quality leaf with the soil, so that we took that up, and after making a survey and trial of tobacco on these soils that we thought were similar to the Cuban tobacco soils, we found that we could produce a leaf with the Cuban aroma, and after working there for four or five years we have perfected a leaf that gives very general satisfaction to the dealers to whom it has been submitted, and there is now a demand

(Witness: Whitney.)

for the tobacco, and the farmers are going into its culture under the direction of the Department, because they realize that without the methods which have been developed by the bureau, and without the knowledge of the soil conditions, and without some care on the part of the Department until this got started, it would be a question whether they could develop it commercially. So that we are keeping our experts there in an advisory capacity; we have finished our work, having determined that the tobacco can be grown, and having settled the question of how it can be handled.

The CHAIRMAN. Cigars are now being manufactured from those two tobaccos?

Professor WHITNEY. Cigars are now being manufactured from those two tobaccos.

The CHAIRMAN. And what is the result in that cigar as compared in quality with the best cigars manufactured elsewhere?

Professor WHITNEY. The quantity has not been sufficient as yet to make any impression on the market, but those who have handled it have expressed very great satisfaction and the satisfaction of their customers.

Mr. SAMUEL. Has there been a great increase of the production of tobacco in those sections since your experiments?

Professor WHITNEY. Yes. The estimated annual value of the work done by the Bureau of Soils on the study of alkali problems, and the practical methods of reclaiming alkali lands when fully developed, is \$1,000,000.

The CHAIRMAN. Has your bureau within the last few years made an examination of the soil in the Yazoo valley or the Yazoo delta?

Professor WHITNEY. We have made two surveys, covering approximately 1,000 square miles.

The CHAIRMAN. What per cent of arable land did you find?

Professor WHITNEY. We found about 33 per cent of arable land, which was confined closely to the rivers and bayous, constituting the higher portions directly adjacent to the rivers. The interior of the country is an open swamp, timbered, from which the overflow of the rivers do not run off until too late in the spring to plant cotton. These soils could easily be reclaimed with artificial dikes connecting up the few openings through which the water now has access, and they would be fertile rice lands.

Of the portion that is under cultivation at the present time, amounting in all to about 10 per cent of the delta, are certain lands that produce now only from a quarter to a half a bale of cotton. These are valuable truck lands, and, as has been pointed out in the report on this area, are capable of producing from \$200 to \$1,000 per acre in truck crops.

The CHAIRMAN. And that includes about 10 per cent of that whole area?

Professor WHITNEY. As I remember it. The cotton soils, the famous cotton soils that produce upwards of a bale and a half to the acre of cotton, constitute about 15 per cent of the total area of the delta which has been surveyed.

The CHAIRMAN. What would be the value per acre of the rice that might be produced upon the swampy lands which constitute such a large per cent of that area if reclaimed?

(Witness: Whitney.)

Professor WHITNEY. The value of that land for rice, if in condition for growing rice, and the timber would well repay the cost of reclamation of the lands, would be about \$50 an acre, instead of \$5, which is about the price it would bring.

The CHAIRMAN. That is, the land would be worth about \$50 an acre for rice growing, whereas it is now worth about \$5 an acre?

Professor WHITNEY. Five dollars an acre for the timber it contains.

The CHAIRMAN. And these facts you ascertained in about three or four months' work by how many men?

Professor WHITNEY. A party of four men.

At 1.15 o'clock p. m. the committee took a recess until 3 o'clock p. m.

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
Washington, D. C., February 6, 1906.

SIR: In accordance with your request of yesterday I take pleasure in inclosing a statement explaining the system of filing correspondence and records in the Bureau of Soils. Of course in a brief statement of this character such as you desired it is impossible to go into great detail, but every possible assistance will be rendered upon request.

I have the honor to be, very respectfully,

MILTON WHITNEY,
Chief of Bureau.

HON. CHAS. E. LITTLEFIELD,
House of Representatives.

Correspondence filing system—Bureau of soils—Statement of A. G. Rice, chief clerk.

The system of filing and indexing correspondence in the Bureau of Soils is primarily a record of transactions, not of individual letters.

In order to illustrate this system and to render the following explanations intelligible, index cards relating to two separate transactions are inclosed. One of these is in connection with the appointment of a stenographer and typewriter (Exhibit A), and the other dealing with a request for a soil survey, and subsequent action (Exhibit B).

An outline of these two transactions follows:

[Exhibit A, jacket No. 9019.]

January 1, 1906, the Bureau of Soils recommended that the Secretary of Agriculture request the Civil Service Commission to certify a list of eligibles for the appointment of a stenographer and typewriter in the Bureau of Soils at \$1,000.

January 7, 1906, the appointment clerk of the Department forwarded a letter to the Bureau of Soils, containing a certification of three names.

January 8, 1906, James Brown, of Richmond, Va.; William Thompson, of Pittsburg, Pa., and Walter Jones, of Baltimore, Md., the eligibles in question, were asked if they would accept the position if tendered.

January 10, 1906, James Brown indicated his willingness to accept the position. Walter Jones and William Thompson declined for reasons stated.

January 15, 1906, the Secretary of Agriculture was asked to issue a probationary appointment to James Brown.

January 18, 1906, the appointment was forwarded to James Brown.

July 18, 1906, a permanent appointment issued to James Brown.

September 1, 1906, a promotion of \$200 recommended and granted.

December 15, 1906, resignation of James Brown received, and recommendation that it be accepted addressed to the Secretary.

[Exhibit B, jacket No. 9018.]

January 20, 1904, W. G. Mather, of Cleveland, Ohio, addressed Senator R. A. Alger, asking him to arrange for a soil survey of Alger County, Mich.

January 24, Senator Alger addressed the Secretary of Agriculture, recommending this survey.

January 30, the Secretary advised Senator Alger that it would be practicable to make the survey in question, and referred the correspondence to the Bureau of Soils.

February 3, Senator Alger acknowledged receipt of the information.

February 20, H. H. Everard, of Kalamazoo, Mich., addressed the Hon. J. C. Burrows, recommending the survey of Alger County.

February 26, Hon. J. C. Burrows addressed the Secretary of Agriculture, inclosing this letter from H. H. Everard, and recommending the survey.

February 29, correspondence referred to the Bureau of Soils.

February 29, the Secretary of Agriculture addressed Hon. J. C. Burrows, stating that arrangements were being made for the survey of Alger County.

April 5, the Chief of the Bureau of Soils addressed H. H. Everard with a view to obtaining a reliable base map of Alger County.

April 19, H. H. Everard addressed the Chief of the Bureau of Soils inclosing the map desired.

April 26, letter addressed to H. H. Everard, acknowledging receipt of the map in question.

The entire correspondence on these two subjects is contained in two jackets Nos. 9018 and 9019.

Two entirely separate series of index cards are maintained, one an index by subjects, the other by names. All correspondence upon one particular transaction (not subject), regardless of the number of persons concerned, is placed in a jacket, 9 by 11½ inches, filed vertically and numerically.

This correspondence is indexed as follows:

SUBJECT INDEX.

Since 1901 a careful record has been kept of the principal subjects of correspondence handled by the Bureau of Soils. This list has been analyzed, and the inclosed shows the lines along which the correspondence of the Bureau is conducted (Exhibit C). These are divided into principal headings, as indicated, the indentations showing the subdivisions of the principal subjects.

This index is flexible; that is, it will admit of the elimination of subjects, subsequently found to be unimportant, or additions to the list, as may be found desirable. The list, Exhibit C, corresponds with the indicator cards in the subject index.

These subject headings are extended to the names of States and to such other minor subdivisions of the subdivisions as may be desirable. For each transaction a card bearing jacket number and reference to the individuals concerned is inserted in the subject card index. Of course but one card is inserted in the subject index for each transaction.

NAME INDEX.

For each individual concerned in any particular transaction a card bearing name, jacket number, and brief reference to the subject is inserted in the name index and filed alphabetically. Although an individual may write any number of times concerning such transaction, his name is registered but once, but if he is concerned in a different transaction an additional card referring to the same must be inserted. In this way the particular individual may have a dozen or more cards in the index case, but each card will cover a separate transaction.

REMARKS.

Separate press copies of all outgoing letters are made on heavy buff copying paper, the copy of the reply being placed in the file next to the original letter received. A carbon copy may be substituted for the press copy, if desired.

The papers are filed in the jackets chronologically, and thus each jacket contains all correspondence from everyone concerned, so arranged that by starting at the bottom of the file all papers upon a particular transaction are found in chronological order.

(Witness: Whitney.)

By reference to the name index all correspondence upon all subjects with any individual, or by reference to the subject index all correspondence on any particular subject with all parties concerned, may be secured from the file in the course of a few moments.

If either the name of the party or the subject under consideration is known the correspondence is easily accessible. It is apparent that if neither of these is known there can be no use for the correspondence.

The advantage of having all correspondence upon different transactions segregated is apparent. It does away with the old style of letter book; copies are made upon good substantial paper, almost as stiff as letter heads, and, aside from the questionable advantage of carbon copies, it is believed that a better system can not be devised for the character of correspondence conducted by this Bureau.

The system suggested above is amenable to either modification or elaboration, adapting it to a correspondence of almost any extent, depending upon the requirements of different offices and lines of work.

It has not been found practicable to go into complete details in so brief a report, and there is, of course, in every office a certain class of unimportant correspondence which it would not be considered advisable to bring within the scope of this index.

EXHIBIT A.

Name Index.

Subject Index.

9019 THOMPSON, WILLIAM.
 Certified as stenographer and typewriter
 January 1906.
 Advised would refuse appointment if
 tendered.

T

9019 SECRETARY.
 Certification stenographer and typewriter
 January 1906 at \$1,000.
 James Brown appointed Jan. 20, 1906.
 Promoted to \$1,200 Sept. 5, 1906.
 Resigned December 15, 1906.

S

9019 JONES, WALTER.
 Certified as stenographer and typewriter
 January 1906.
 Advised would refuse appointment if
 tendered.

J

9019 CIVIL SERVICE COMMISSION.
 Certification stenographer and typewriter
 January 1906 at \$1,000.
 James Brown appointed Jan. 20, 1906.

C

9019 BROWN, JAMES.
 Appointed stenographer and typewriter
 Jan. 20, 1906 at \$1,000.
 Promoted to \$1,200 Sept. 5, 1906.
 Resigned December 15, 1906.

B

9019 APPOINTMENT CLERK.
 Certification stenographer and typewriter
 January 1906 at \$1,000.
 James Brown appointed Jan. 20, 1906.

A

9019 APPOINTMENTS.
 SERVICE RECORDS.
 James Brown appointed stenographer
 and typewriter at \$1,000, Jan. 20, 1906.

Service Records.

SUB-INDICATOR CARD.

9019 APPOINTMENTS.
 CERTIFICATION.
 Walter Jones and William Thompson,
 stenographer and typewriter January
 1906 at \$1,000.

Certifications.

SUB-INDICATOR CARD.

Appointments.

PRINCIPAL INDICATOR CARD.

EXHIBIT B.

Name Index.

Subject Index.

9018

SECRETARY.

Request for soil survey of Alger County,
Michigan by Wm. G. Mather.

Indorsed by Hon. R. A. Alger.

S

9018

MATHER, WM. G.

Request for soil survey of Alger County,
Michigan.

M

9018

EVERARD, H. H.

Request for soil survey of Alger County,
Michigan.

E

9018

BURROWS, HON. J. C.

Request for soil survey of Alger County,
Michigan, by H. H. Everard.

B

9018

SOIL SURVEYS — Michigan.

Alger County requested by Wm. G. Mather.
Indorsed by Hon. R. A. Alger.Also by H. H. Everard, indorsed by Hon.
J. C. Burrows.

Michigan.

MINOR DIVISION CARD.

Requests for,
Regarding, by States.

SUB-INDICATOR CARD.

Soil Surveys.

PRINCIPAL INDICATOR CARD.

EXHIBIT C.

- Abandoned Farms.
 Accounts and Supplies.
 Electricity—Gas.
 Express—Freight—Telegraph.
 Employees (Personal).
 Expense.
 Rent.
 Salaries.
 Transportation.
 Vouchers ref. for correction.
 Requisitions and orders.
 Orders by letter—Req. to follow.
 Deliveries requested.
 Defective—Broken—Shortage.
 Canceled requisitions.
 Approval to purchase without bid.
 Miscellaneous.
 Acting Chief and Acting C. C.
 Addresses.
 Alkali Reclamation.
 Requested and regarding by States.
 Miscellaneous.
 Analyses of Soils and Waters.
 Moisture determinations, etc.
 By States.
 Miscellaneous.
 Apparatus (Instruments), etc.
 Laboratory.
 Soil survey.
 Miscellaneous.
 Appointments.
 Certification.
 Service Records.
 Appointments (Applications and Recommendations).
 Chemist.
 Field assistant.
 Physicist.
 Scientific aid, laby. asst., etc.
 Stenographer.
 Tobacco expert.
 Miscellaneous.
 Appropriations.
 Agricultural bill.
 Estimates.
 Allotments.
 Bids and Quotations.
 Board of awards.
 Chemicals.
 Alkali supplies.
 Laboratory supplies.
 Office supplies.
 Soil survey supplies.
 Tobacco supplies.
 Miscellaneous.
 Borrowed and Loaned Articles.
 Bonds and Bonded Articles.
 Buildings and Structures.
 Catalogues.
 Civil Service.
 Examinations.
 Miscellaneous.
 Comments on Bureau's work.
 Favorable.
 Unfavorable.
 Cooperation.
 Experiment stations.
 Bureaus and Departments.
 Individuals.
 Diplomas.
 Education (Agrl.), Courses Study, etc.
 Employees.
 Duties.
 Instructions.
 Miscellaneous.
 Experiments and scientific work.
 Fertilizers.
 Effects.
 Lime.
 Commercial.
 Certain deposits.
 Kinds to use on certain soils.
 Miscellaneous.
 Illustrations (Plates, Negatives, Lantern Slides, Photos, Drawings).
 Infringements.
 Instructions—Orders—Rulings and Interpretations.
 Interviews.
 Introductions.
 Irrigation.
 Invitations.
 Leases and Agreements.
 Office buildings.
 Tobacco.
 Alkali.
 Miscellaneous.
 Leave of Absence.
 Annual and extended.
 Disallowed.
 Transferred.
 Sickness.
 Without pay.
 Lectures.
 Maps.
 By States.
 Miscellaneous.
 Meetings, Committees, Associations, etc.
 Methods.
 Coloremetric.
 Fertilizer analysis.
 Soil acidity.
 Soil analysis.
 Miscellaneous.
 Miscellaneous.
 Plants (not Tobacco).
 Diseased.
 Identification.
 Publications.
 Results.
 Acknowledged by Bureau.
 Requested by Bureau.
 Published by Department.
 Published outside of Department.
 Articles and papers.
 Comments on Bureau's publication.
 Conficting and for consideration.
 Special reports.
 Mailing Lists.
 Projects or Lines of Work in Dept.
 Requests on Chief Clerk of Dept.
 Seed (not Tobacco).
 Soils and Crops:
 Advice and adaptability by States.
 Experts and assistance asked for.
 Advice to aid in purchase of property.
 Samples not for analysis.
 Location of certain lands or deposits, peat, kaolin, fire clay, minerals, etc.
 Miscellaneous.
 Soil Surveys:
 Requests for and regarding by States.
 Miscellaneous.
 Soil Fertility Work:
 Wire basket investigations.
 Field experiments and requests for.
 Miscellaneous.
 Tobacco:
 Burning qualities.
 Curing and handling.
 Cigars.
 Diseases, bugs, insects.
 Fertilizers.
 Growers and associations.
 Sales.
 Samples.
 Statistics.
 Varieties.
 Seed.
 Production, experts and assistance asked for—By States.
 Miscellaneous.
 Trips (Inspection and Special).
 Transportation:
 Rates.
 Orders.
 Titles.
 Visits.

BUREAU OF ENTOMOLOGY.

AFTERNOON SESSION.

TUESDAY, *January 22, 1907.*

The committee reassembled at 3 o'clock p. m., Hon. Charles E. Littlefield (chairman) in the chair.

STATEMENT OF DR. L. O. HOWARD, CHIEF OF THE BUREAU OF ENTOMOLOGY OF THE DEPARTMENT OF AGRICULTURE.

Doctor Howard was sworn by the Chairman.

The CHAIRMAN. You are the head of the Bureau of Entomology?

Doctor HOWARD. Yes.

The CHAIRMAN. How long has that bureau been in existence?

Doctor HOWARD. Two years, I think.

The CHAIRMAN. Two years?

Doctor HOWARD. I think so.

The CHAIRMAN. Was there any work of that character being carried on in the Department of Agriculture prior to the organization of the bureau?

Doctor HOWARD. Yes; for a number of years it was carried on as a division, as an independent division.

The CHAIRMAN. Who was at the head of that division?

Doctor HOWARD. I was. I have been since 1894. Prior to my occupancy Professor Riley was at the head of it.

The CHAIRMAN. Was divisional work going on prior to your being head of the division of that character?

Doctor HOWARD. Yes; under Professor Riley. It was the first office of a Department to be called a division.

The CHAIRMAN. And since 1894 you have been connected with it either as a division or a bureau?

Doctor HOWARD. Yes.

The CHAIRMAN. In 1904 it was organized as a bureau?

Doctor HOWARD. I think that was the year.

The CHAIRMAN. Was that because of legislation or by administrative action?

Doctor HOWARD. It was by legislative authority.

The CHAIRMAN. That is, the appropriation bill provided for the establishment of this bureau?

Doctor HOWARD. Yes—that is to say, it simply changed the name.

The CHAIRMAN. Was there any change in either the work of the bureau or the personnel when it went from a division to a bureau?

Doctor HOWARD. No, sir.

(Witnesses: Howard, Zappone.)

The CHAIRMAN. There has been no increase in expense?

Doctor HOWARD. The appropriations have been gradually increasing from year to year; but there was no marked increase at the time of the establishment of the bureau.

The CHAIRMAN. Was there any change in the executive organization from the division to the bureau?

Doctor HOWARD. None at all, except the change of the title of the chief from chief of a division to chief of a bureau.

The CHAIRMAN. There was no change in the salaries?

Doctor HOWARD. There was no change in salaries. Now, one moment. I am not sure, but there may have been a slight increase in my own salary. And if you will pardon me, I think it was in 1905 that it was made a bureau, instead of 1904.

The CHAIRMAN. You say two years, predicating that from 1907?

Doctor HOWARD. Yes.

Mr. ZAPPONE. I find that it was 1905, Mr. Chairman.

The CHAIRMAN. There was, you say, a slight increase in your own salary?

Doctor HOWARD. I think so.

The CHAIRMAN. How much was that?

Doctor HOWARD. From \$2,500 to \$2,750.

The CHAIRMAN. It is now \$3,250?

Doctor HOWARD. It is now \$3,250; yes, sir.

The CHAIRMAN. An increase of \$250?

Doctor HOWARD. Yes. I am not quite certain but what that increase was made prior to that time.

Mr. ZAPPONE. I have the law before me. In 1904 the salary of the entomologist was \$2,750. In 1905, the next year, in which the division was made a bureau, the salary of the chief was \$2,750, the same—

Doctor HOWARD. With the proviso that there was \$500 extra during the incumbency of the present occupant. Is not that there?

Mr. ZAPPONE. Yes; and "for additional compensation while the office is held by the present incumbent, \$500." That made it \$3,250.

The CHAIRMAN. The regular salary is \$2,750 now, with the addition of \$500 for yourself?

Doctor HOWARD. It was in 1905. In 1906 the salary was \$3,000, with \$250 additional.

The CHAIRMAN. What was the occasion for that peculiar provision?

Doctor HOWARD. I have no idea.

Mr. ZAPPONE. They made the same kind of a provision in the case of the chief of the Bureau of Animal Industry. The predecessor of Doctor Melvin received \$5,000. The regular salary was \$4,500, with \$500 additional while the office was held by Doctor Salmon. When Doctor Melvin succeeded to the office the \$500 allowed to Doctor Salmon as additional compensation had to be turned back into the Treasury. The wording of the law is identical in these two cases, and it means that should someone succeed Doctor Howard the additional amount would have to be turned back into the Treasury.

The CHAIRMAN. The regular salary is now \$3,250?

Doctor HOWARD. No; it is \$3,000, with \$250 additional.

Mr. ZAPPONE. \$250, instead of \$500, is still appropriated in this way.

The CHAIRMAN. You do not know what the reason for that was?

Doctor HOWARD. The Secretary of Agriculture asked for the increase for me, and the Agricultural Committee seemed to be inclined to put it in this way for me.

Mr. ZAPPONE. They thought that the Chief of the Bureau of Entomology had deserved such an increase by good work done, but they did not know what the man who might succeed him would do, and they felt that he should first win his spurs.

The CHAIRMAN. Have the duties been more onerous since that time?

Doctor HOWARD. Not because it was made a bureau, but because we have had more money to expend and more duties to look after.

The CHAIRMAN. More duties to discharge?

Doctor HOWARD. More duties to discharge. That is on account of the increased appropriations.

The CHAIRMAN. What does the increase involve, simply an increase of personnel in your bureau?

Doctor HOWARD. Yes.

The CHAIRMAN. That really is the principal expenditure in your bureau, the expenditure for personnel.

Doctor HOWARD. Very true.

The CHAIRMAN. And when you increase the personnel, that merely involves a wider scope on the part of your bureau on account of having more men to cover more ground?

Doctor HOWARD. Yes.

The CHAIRMAN. Were any other salaries increased, incident to the change from a division to a bureau?

Doctor HOWARD. Not dependent on the change to a bureau, but salaries have increased almost every year.

The CHAIRMAN. Do you mean the salaries of the individual employees have increased every year, or that positions are created with larger salaries attached to them?

Doctor HOWARD. The salaries of individual employees.

The CHAIRMAN. That simply means promotions?

Doctor HOWARD. It simply means promotions, that is all.

The CHAIRMAN. Take, for instance, the chief clerk, \$1,800.

Doctor HOWARD. Yes.

The CHAIRMAN. Did he receive the same sum when he was chief clerk in the division?

Doctor HOWARD. I do not recollect the exact date of his increase. He was increased from \$1,600 to \$1,800 about that time, but I am not sure that it was coincident.

The CHAIRMAN. What is the differentiation between a bureau and a division, and why is a bureau distinguished from a division?

Doctor HOWARD. Nothing at all, except that it has a more dignified rank among the official institutions.

The CHAIRMAN. It is a matter of sentiment rather than substance?

Doctor HOWARD. It seems to be, and at the same time I imagine that there is a general feeling that Congress would give larger appropriations to a bureau than it would to a division.

The CHAIRMAN. And perhaps, as incidental to that, an increase in compensation?

Doctor HOWARD. To the chief.

(Witness: Howard.)

The CHAIRMAN. For the handling of the larger appropriations and for the chief in the handling of the larger appropriations?

Doctor HOWARD. Yes.

The CHAIRMAN. So that it really comes down to the fact that the creation of a bureau tends to increase the cost to the Government without increasing efficiency—without necessarily getting any additional returns?

Doctor HOWARD. I should hardly agree to that in its entirety. There is a compensating increase in efficiency, perhaps.

The CHAIRMAN. Of course if you have larger appropriations under a bureau, it involves larger work.

Doctor HOWARD. Exactly so.

The CHAIRMAN. But assuming they did not increase your appropriations, if there was a tendency to increase the salaries under the bureau form—you get my proposition?

Doctor HOWARD. Yes.

The CHAIRMAN. Not applying it to this bureau; but we have found on examination that there were several instances where divisions have been changed into bureaus where that has been the case.

Doctor HOWARD. Yes.

The CHAIRMAN. What I have been trying to get at is whether the efficiency of the bureau is necessarily promoted by the change.

Doctor HOWARD. I should say not necessarily. I think that the same amount of work could be accomplished with the same money under a divisional organization as can be accomplished under the bureau organization; that is, provided the divisional organization were an independent organization reporting to the Secretary, and not through a bureau.

The CHAIRMAN. What bureau were you attached to when you were a division?

Doctor HOWARD. We were an independent division.

The CHAIRMAN. Then you reported right to the Secretary?

Doctor HOWARD. Yes.

The CHAIRMAN. So that in the instance of yourself, so far as the executive efficiency is concerned, there was no occasion for the change from a division to a bureau?

Doctor HOWARD. I think you are right in that.

The CHAIRMAN. But is it a fact that while it may not be marked the tendency is to increase the salaries and expenses, without a corresponding increase in results, by the change of the division organization to the bureau organization?

Doctor HOWARD. I think not markedly so, except so far as it increases general appropriations and widens the field of investigation, thus producing a general tendency to increased compensation.

The CHAIRMAN. Upon what basis do you determine the compensation that men are entitled to receive in these various classes of clerks?

Doctor HOWARD. We have very few clerks, Mr. Chairman; relatively few clerks. Most of the men employed are scientific men, and their promotions are based entirely on the efficiency of their work; not entirely on the efficiency of their work, but primarily so.

The CHAIRMAN. You have three clerks at \$1,000, one clerk at \$1,200, and three clerks at \$1,400.

Doctor HOWARD. The salaries of those clerks are based on their rec-

ords of efficiency, and also the length of time of their employment is taken into consideration.

The CHAIRMAN. You say "records of efficiency." What do you mean by that?

Doctor HOWARD. Every six months, I think it is, records of efficiency are drawn up in my office, and they are estimated by me, and turned into the appointment clerk of the Department, and promotions are based upon those records and upon my own personal impression of the man's efficiency, and after consultation with the committee on promotions I make recommendations.

The CHAIRMAN. Those reports are turned in, you say, to the Secretary of Agriculture?

Doctor HOWARD. Yes; in the care of the appointment clerk.

The CHAIRMAN. You do what, you say?

Doctor HOWARD. I make the recommendations for promotions at the end of the year.

The CHAIRMAN. And this is based upon the work actually done by these men in the preceding time?

Doctor HOWARD. Entirely upon the work actually done in the preceding time.

The CHAIRMAN. Are these three classes of clerks, to which I have called your attention, engaged in doing substantially the same class of work?

Doctor HOWARD. I believe so; yes.

The CHAIRMAN. What is it in its character, stenography and transcribing, or accounting or record making?

Doctor HOWARD. Stenographic and accounting, and plain copying, and care of records and miscellaneous work like that, scanning of the agricultural newspapers and selection of topics they know that I would be interested in.

The CHAIRMAN. Are they all doing that work?

Doctor HOWARD. Yes.

The CHAIRMAN. They are all doing the same kind of work?

Doctor HOWARD. Yes.

The CHAIRMAN. And you differentiate between the classes by reason of the fact that the twelve hundred-dollar man is able to accomplish more results to the Government and is entitled to more compensation than the thousand-dollar man?

Doctor HOWARD. Yes.

The CHAIRMAN. You say the length of time of service of a man is a factor?

Doctor HOWARD. It is taken into account in connection with the efficiency.

The CHAIRMAN. What is the effect of that factor?

Doctor HOWARD. If you have two men of equal efficiency and one has been in the service a longer time that fact is entitled to some weight.

The CHAIRMAN. Then you would give the man of the longer service preference?

Doctor HOWARD. Yes.

The CHAIRMAN. Other things being equal?

Doctor HOWARD. Yes.

The CHAIRMAN. But is that length of service the determining and controlling factor?

(Witness: Howard.)

Doctor HOWARD. Not unless the grade of efficiency is the same.

The CHAIRMAN. That is the exception that I made.

Doctor HOWARD. Yes.

The CHAIRMAN. With that exception, when you have men standing parallel so far as their efficiency is concerned, one with a longer term of service than the other, you would give the preference to the man with the longer term of service?

Doctor HOWARD. Yes.

The CHAIRMAN. But with that exception is it a determining factor?

Doctor HOWARD. Not in my recommendations; no, sir. I never take anything else into consideration.

The CHAIRMAN. Are any men who are employed in your bureau or under your direction in any other Government employment?

Doctor HOWARD. I know of no cases. In fact, I am sure there are none.

The CHAIRMAN. Have there ever been?

Doctor HOWARD. No, sir.

The CHAIRMAN. I mean, of course, since your connection with the Bureau?

Doctor HOWARD. You mean in a salaried office?

The CHAIRMAN. Yes.

Doctor HOWARD. There are a number of men who have honorary positions as custodians in the National Museum.

The CHAIRMAN. No; I mean drawing salaries, large or small, from any other department of the Government.

Doctor HOWARD. No.

The CHAIRMAN. Are there men on your roll engaged in private employment that results in compensation to them?

Doctor HOWARD. Yes.

The CHAIRMAN. To what extent?

Doctor HOWARD. Take myself, for example. I am the permanent secretary of the American Association for the Advancement of Science, and I draw a salary. There is another gentleman, Mr. Clifton, who also draws a salary for similar service. That work is done at night, but in no way interferes with the work of the Bureau.

The CHAIRMAN. Where does that association hold its meetings?

Doctor HOWARD. Last winter it met in New Orleans, the year before that in Philadelphia, and the year before that in St. Louis.

The CHAIRMAN. With the exception of attending those meetings, do those positions involve your being absent from Washington at all?

Doctor HOWARD. No, sir; not at all.

The CHAIRMAN. And that, I suppose, is only about a week or two during the year?

Doctor HOWARD. About a week during the year, and practically all of the scientific men in the Department also attend these meetings as members of the association.

The CHAIRMAN. You mean in the various bureaus?

Doctor HOWARD. Yes; in the various bureaus of the Agricultural Department and in most of the scientific departments of the Government.

The CHAIRMAN. So that the attendance upon those meetings is not peculiar to yourself and to your assistants?

Doctor HOWARD. No.

(Witness: Howard.)

The CHAIRMAN. With that exception, are there any men in your bureau who have outside employment?

Doctor HOWARD. No; none who have definite outside employment; but permission has been given by the Secretary of Agriculture in two cases for men to write books, provided it should not interfere with their Bureau duty.

The CHAIRMAN. Are all these men in your bureau, either in Washington or out, necessarily employed all the time during office hours in the performance of official duties?

Doctor HOWARD. If I understand the question right; yes, sir.

The CHAIRMAN. What I mean is, have you enough work to keep the men on your roll regularly and continuously employed?

Doctor HOWARD. Yes.

The CHAIRMAN. And do they render the same relative units of work? That is, do they do the same relative units of work in your employment and bureau as men in similar occupations do for people outside; that is, do you get as much results?

Doctor HOWARD. I am not able to compare the results of the clerks with those of clerks in business establishments, because I know nothing about business establishments; but as to the scientific men, I think the quantity of work that they do, the units of work, would range higher, because they are all of them enthusiastic about their work, and they do not confine themselves to any hours whatever.

The CHAIRMAN. Do you have any difficulty in getting all the men you need for the various branches of your service?

Doctor HOWARD. Some difficulty.

The CHAIRMAN. In what particular?

Doctor HOWARD. The men must be educated scientific men, and it is only within the last few years that the colleges have been training men in the precise way we would like to have them trained.

The CHAIRMAN. That is, do I understand that the colleges have not included in their curricula the classes of studies which are necessary to develop the kind of men you want?

Doctor HOWARD. The agricultural colleges have included those studies in their curricula, but have not trained the men in the right way. Their professors have not understood the needs of the Government, and the result is that they have trained the men more or less theoretically; whereas we want our men to have practical training while they are still in college, so as to make them more efficient.

The CHAIRMAN. Your work involves specializing on particular lines; is that right?

Doctor HOWARD. Yes.

The CHAIRMAN. And until recently you have found that the colleges have not appreciated that, and have not been supplying those needs?

Doctor HOWARD. That is right.

The CHAIRMAN. Are you getting into a position now where you are eliminating those difficulties?

Doctor HOWARD. I think so; yes, sir.

The CHAIRMAN. With the exception of those scientists of whom you speak, who are of course unusual men and a little out of the ordinary, do you have any trouble in getting employees for your department?

(Witnesses: Howard, Zappone.)

Doctor HOWARD. We are very satisfactorily supplied by the Civil Service Commission for the clerical positions.

The CHAIRMAN. That includes everybody except these scientists?

Doctor HOWARD. Yes; but the great bulk of the force of the Bureau of Entomology is composed of scientific men.

The CHAIRMAN. On page 242, the first name on the list is that of C. L. Marlatt, who is an investigator, at \$2,750. How long has he been drawing that salary?

Doctor HOWARD. For several years. I think about four years. I am sorry I can not be perfectly accurate about it.

The CHAIRMAN. That is simply an approximation?

Doctor HOWARD. Yes.

The CHAIRMAN. My eye happened to strike that name in the list. Was it not a little incongruous for this investigator under you, when you were at the head of the division, to draw the same salary that you did?

Doctor HOWARD. Yes. That makes me recognize the fact that I was wrong in the statement I made. It was only when my salary was advanced to \$3,250 that his was advanced to \$2,750.

The CHAIRMAN. Then his advance was practically contemporaneous with the creation of the bureau?

Doctor HOWARD. Yes.

Mr. ZAPPONE. That was in 1905?

Doctor HOWARD. Yes.

The CHAIRMAN. Yes. Was this other investigator at \$2,650 advanced at the same time?

Doctor HOWARD. Yes.

The CHAIRMAN. And this other one at \$2,500, was he advanced at the same time?

Doctor HOWARD. No; I think not. He was appointed the year before, I think—Hopkins.

The CHAIRMAN. What was Chittenden getting prior to the organization of the bureau, if you remember?

Doctor HOWARD. Either \$2,000 or \$2,250.

The CHAIRMAN. There, you see, were raises of \$250, \$400, and \$650.

Doctor HOWARD. Yes.

The CHAIRMAN. Contemporaneous with the creation of the bureau. Is it not rather probable that that was more incidental to the creation of the bureau than it was to the performance of additional services by the two men?

Doctor HOWARD. It was not consequent upon either; I am very sure that it was not, Mr. Chairman; because I realize now for the first time that it was contemporaneous with the change from a division to a bureau. It was absolutely contemporaneous with a large increase in our funds from the Committee on Agriculture, devoted to certain special investigations which were itemized in the bill.

The CHAIRMAN. Yes; but the salary of a man ought not to be based on the funds from which he is paid so much as it should be upon the services which he renders. Would you not agree to that hypothesis?

Doctor HOWARD. As an abstract proposition; yes, sir.

The CHAIRMAN. Of course I admit that it may be connected with other facts. But, finding these promotions contemporaneous with the creation of the bureau and with the increase of the salaries of the

(Witness: Howard.)

bureau chief and the officers above these men, it would rather look, prima facie, as though it might be incidental thereto.

Doctor HOWARD. Yes; it would look that way.

The CHAIRMAN. You would hardly expect the Appropriations Committee to pay to an investigator whom you had the responsibility of directing and controlling the same salary that you received.

Doctor HOWARD. No.

The CHAIRMAN. Because, of course, you have a position with a responsibility connected thereto that that man under you does not have.

Doctor HOWARD. That is so.

The CHAIRMAN. So that it would look on the face of it as though the increase in the salary of the bureau chief rather opened up an opportunity for the increase of the two men below, and that the increase was based rather on the matter of a change of name than on the matter of additional service rendered? But you can explain that from your point of view as it is.

Doctor HOWARD. As a matter of fact, it was dependent on the funds appropriated, which gave the means of promoting men who had richly deserved it for a number of years. That is the sole way I look upon the thing.

The CHAIRMAN. These men were not promoted; the salaries were increased?

Doctor HOWARD. Yes; that is what I meant.

The CHAIRMAN. That was simply because they had the funds with which to pay?

Doctor HOWARD. Yes.

The CHAIRMAN. Would you want to predicate an increase of salary upon the existence of funds out of which it is to be paid?

Doctor HOWARD. If the men deserved the salary. There could not be an increase of salary if there was no money out of which to pay it.

The CHAIRMAN. That introduces another element. But the mere increase of an appropriation would not justify the increase of salary?

Doctor HOWARD. No, sir.

The CHAIRMAN. Your idea is that these men for some time had been earning more?

Doctor HOWARD. Yes.

The CHAIRMAN. And ought to have received more?

Doctor HOWARD. Yes.

The CHAIRMAN. I suppose if it had gone on as a division it is very doubtful whether they would have received more, is it not?

Doctor HOWARD. They probably would not have been increased above the salary of the chief, as you said a moment ago.

The CHAIRMAN. Unless the salary of the chief had been increased?

Doctor HOWARD. If the salary of the chief had been increased and they had been given more money, I think that there is no doubt that those salaries would have been increased in just that way, even though it had remained a division.

The CHAIRMAN. Have you had any difficulty in holding these men?

Doctor HOWARD. Yes; I have had considerable difficulty.

The CHAIRMAN. How many men have you lost who were in these higher-salaried positions?

Doctor HOWARD. I have lost none from the higher-salaried positions.

(Witness: Howard.)

The CHAIRMAN. Then, as a matter of fact, while you may have had difficulty, it never has reached the stage of their leaving the service?

Doctor HOWARD. No. I have lost a number of men in the lower grades.

The CHAIRMAN. On account of higher-salaried positions being offered them?

Doctor HOWARD. On account of being offered higher salaries in the universities.

The CHAIRMAN. But you have lost none in the higher grades?

Doctor HOWARD. No, sir; although I have hardly a man in the higher grades who has not been offered a higher salary, but the opportunities for work here so appeal to them that they are willing to stay at a lower salary.

The CHAIRMAN. Then I think there is another thing, and that is, that the employment here, so long as the official is faithful and reliable and capable, is substantially permanent?

Doctor HOWARD. Yes.

The CHAIRMAN. Which element is not present in quite that degree in the ordinary private employment?

Doctor HOWARD. It holds for the larger universities, Mr. Chairman, but not for the smaller agricultural colleges.

The CHAIRMAN. That circumscribes the area, if you confine it to the larger universities.

Doctor HOWARD. Yes.

The CHAIRMAN. So that it gives you a very small area in which it could fairly be said that permanent employment was open to those men?

Doctor HOWARD. Yes.

The CHAIRMAN. A man might very well be offered, for two or three years, two or three or four hundred dollars more.

Doctor HOWARD. Yes.

The CHAIRMAN. But if he had to hazard the leaving of that employment at the end of that time, it might have been very much better for him to have stayed in a permanent position at a lower salary?

Doctor HOWARD. Yes.

The CHAIRMAN. The large part of your work is done here in Washington?

Doctor HOWARD. My own work, or the work of the bureau?

The CHAIRMAN. I mean your bureau work.

Doctor HOWARD. A large part, not "the" large part. I think the majority of it is done outside.

The CHAIRMAN. I rather inferred that from the fact that the salary list in Washington is very much larger than the salary list outside.

Doctor HOWARD. Yes?

The CHAIRMAN. And yet I see that there is a lot of traveling expenses here; your Washington force has to do a great deal of traveling?

Doctor HOWARD. Yes, a great deal.

The CHAIRMAN. Please explain this; what portion of your work is

(Witness: Howard.)

done here in Washington, and what portion is done outside? Of course, you will have to make that explanation in a general way.

Doctor HOWARD. Yes. We have a force, Mr. Chairman, of, I think, 26 scientific men, and a few other employees, engaged at the present time in the investigation of the cotton boll weevil. Nearly all of those men are in the field throughout the entire year. Perhaps half a dozen of them come to Washington for the winter to work up their reports and make their plans for work during the coming season. In the same way we have possibly among the other scientific employees of the bureau 12 or 15 who spend the entire summer in the field, and come to Washington in the winter to write up their reports.

The CHAIRMAN. How are those classed, as Washington men?

Doctor HOWARD. I think they are, most of them, Washington men; Burke and Webb and Johnson. Take that list on page 243, Benton, Moulton, Burke, Fiske, Webb, Johnson, Ball, Girault, Phillips, Rankin, Reeves, Rosenfeld, Beattie, Phillips, Willis, Chambliss. They are put down, I see, under the head of "Outside of Washington."

The CHAIRMAN. What percentage of your work is in Washington, as compared with the whole?

Doctor HOWARD. I am inclined to think that less than half of it is done in Washington, and more than half of it is done in the field.

The CHAIRMAN. You have some men here on the list outside of Washington. That is on page 243?

Doctor HOWARD. Yes.

The CHAIRMAN. Those men, I infer, are continuously outside?

Doctor HOWARD. No; they are in Washington for two or three months in the winter time.

The CHAIRMAN. For two or three months?

Doctor HOWARD. Yes; for the purpose of writing reports, and so forth; that is, all but one or two.

The CHAIRMAN. You speak of cotton boll weevil investigations, and I notice that you have expended or advanced in that work nearly \$60,000. We had quite an extended explanation from the head of the Bureau of Plant Industry, which seemed to cover quite fully that same investigation. Are we to understand that there were concurrent or contemporaneous investigations from different scientific points of view going on in connection with the cotton boll weevil pest?

Doctor HOWARD. No, sir. The investigation was made under an appropriation which was, I think, entitled "To meet the emergencies caused by the ravages of the cotton boll weevil."

The CHAIRMAN. That is the appropriation for your bureau.

Doctor HOWARD. No; the whole appropriation to be expended under the direction of the Secretary of Agriculture. Now, the Secretary has construed "To meet the emergencies caused by the ravages of the cotton boll weevil" to authorize and require not only an investigation of the cotton boll weevil itself, but of the conditions in the South resulting from the injury that was done. He therefore divided the appropriation into two parts, one part to be expended by the Bureau of Entomology in an investigation of the cotton boll weevil itself and the remedies to be used against it, the other to be expended under the Bureau of Plant Industry to meet the emergency—that is to say, to indicate to the southern people the advan-

(Witness: Howard.)

tage of diversification of crops, and to teach them not to rely so entirely upon cotton. And it is in the direction of diversified crops, and in the direction of plant breeding (endeavoring to find a variety of cotton that would be resistant to the boll weevil), that the money under the direction of the Bureau of Plant Industry has been expended.

The CHAIRMAN. Yes; but the investigations of the two bureaus were going on at the same time.

Doctor HOWARD. The investigations of the two bureaus were going on at the same time, but they did not overlap.

The CHAIRMAN. The plant-industry investigation was more curative, in a sense, and yours was intended to be more preventive?

Doctor HOWARD. Yes; theirs was more curative so far as the conditions in the South were concerned. Ours was the one that was directed specifically against the boll weevil itself.

The CHAIRMAN. Yes. In a general way you may state to us what you did—on large lines.

Doctor HOWARD. At the outset, when the boll weevil first made its appearance in Texas, we were consulted. We advised the instant passage of a State bill which would set apart an area in which no cotton should be cultivated, and thus prevent the spread of the weevil. This was not done, and the weevil did spread. Then we took up the investigation. Texas herself appropriated for the purpose of an investigation. In 1901 we took it up again. We have studied the insect and have developed a complete system of cultural control of the insect based upon its life history and habits, which has been worked out so that it is possible now, in Texas and Louisiana, to grow cotton in spite of the boll weevil. We have not found any startling remedy which will wipe the insect out.

The CHAIRMAN. What have you found—something that will check the development and progress of the weevil itself?

Doctor HOWARD. We have found that the life history of the weevil itself is such that it is possible, by forcing growth, to secure a crop of cotton before autumn, in spite of the presence of the weevil. Then, if at that time the cotton stalks are cut down and burned or carried away, the weevil will be reduced to an absolute minimum the following spring—that is, 99 per cent of them will be done away with.

The CHAIRMAN. That was discovered by the Bureau of Plant Industry?

Doctor HOWARD. That is just it. They had nothing to do with it.

The CHAIRMAN. Do we understand that your investigations resulted in just the same discoveries as the investigations of the Bureau of Plant Industry?

Doctor HOWARD. They had nothing to do with the discovery at all. When they came in, that was discovered, and they are simply demonstrating to the farmers the methods of the Bureau of Entomology.

The CHAIRMAN. Perhaps I am entirely wrong, but I had gained the impression that that was the work of the Bureau of Plant Industry—that development of the scheme of growing an early crop of cotton so as to get it out of the way of the boll weevil. That was the impression I received in regard to it.

Doctor HOWARD. No, sir; that was the work of the Bureau of Entomology. And the Bureau of Plant Industry is demonstrating to

(Witness: Howard.)

the farmers; and that whole thing was done before they took hold of it at all.

The CHAIRMAN. Am I to understand that you are doing two entirely different things and that the work and the appropriation are divided between the two bureaus?

Doctor HOWARD. Yes.

The CHAIRMAN. And that all they did was to take the information that you gave them?

Doctor HOWARD. Yes; and they are demonstrating this.

The CHAIRMAN. All they have done is to apply it?

Doctor HOWARD. Yes; demonstrating it on demonstration farms.

The CHAIRMAN. That is nothing but executive work.

Doctor HOWARD. That is all. And in addition to that they are breeding cotton plants of the various varieties.

The CHAIRMAN. That is a feature that is not involved in this investigation at all?

Doctor HOWARD. No.

The CHAIRMAN. Did your bureau reach any result in regard to this weevil in the way of counteracting its ravages, other than this one of hurrying and getting the crop out of the way early?

Doctor HOWARD. No, sir; we are just now approaching some important work in regard to parasites. We have made extensive search in tropical regions in Cuba and in Central America, the original home of this boll weevil, for parasites. We have not found any. But since it has made its appearance in Texas some of the native parasites have exhibited a tendency to take hold of it and to destroy it.

The CHAIRMAN. That is on the theory that "fleas have other fleas to bite 'em, and so on ad infinitum?"

Doctor HOWARD. Yes. We are studying these parasites, of course, and trying to find out some means by which we may facilitate their multiplication and use them practically for the extermination of the boll weevil.

The CHAIRMAN. When did your Department demonstrate these results which are being used by the farmers, these results which are being demonstrated by the Bureau of Plant Industry? When did you reach that demonstration of practical immunity—I will not say that, but substantial immunity?

Doctor HOWARD. We succeeded in demonstrating it on a large scale satisfactorily for the first time, I think, in the winter of 1902-3.

The CHAIRMAN. Now, that closed that line of investigation?

Doctor HOWARD. Yes.

The CHAIRMAN. That is, you had accomplished the results?

Doctor HOWARD. Practically so, but at the same time there was this necessity. The weevil was constantly advancing, getting into a northern climate and working eastward at the same time into the moist climate of the Mississippi bottom lands; the bottom lands of Louisiana, and it was constantly changing its habits in a most curious way. It was necessary, absolutely, from year to year to follow and observe the changes in this creature's habits as it changed its geographical range.

The CHAIRMAN. Why?

Doctor HOWARD. We must know everything about the insect from every possible point before we can be sure that our remedies will be effective.

The CHAIRMAN. For what particular phases of this investigation were your expenditures in the last year made; some \$44,000?

Doctor HOWARD. We are constantly testing all remedies which are proposed or suggested. We are testing remedies not only in the laboratory at Dallas, Tex., but also on a large scale in the field. New ideas are constantly occurring to members of the force engaged in this investigation. Here is an encouraging idea; here is something that may result in more relief than we have had so far. As a result we have entered into contracts with planters at different parts of Texas and Louisiana for a certain number of acres under our supervision, to grow them in a certain way, planting the rows just so far apart, using just such seed and just such fertilizer, and then our men are constantly watching those plots throughout the season from day to day to determine the effect of these operations on the boll weevil itself.

The CHAIRMAN. Is not the Bureau of Plant Industry doing substantially the same thing?

Doctor HOWARD. Not at all the same thing. They are demonstrating by planting in a certain way that the farmer can get rid of the boll weevil.

The CHAIRMAN. Have they not done any experimental work?

Doctor HOWARD. No, sir; ours is strictly experimental and theirs is entirely demonstration.

The CHAIRMAN. Have they never done any experimental work?

Doctor HOWARD. They are not doing it, because they are not competent to do it in this way, not being trained entomologists—trained observers of insects.

The CHAIRMAN. I did not suppose there was anything else about the boll weevil after we got through with the Bureau of Plant Industry.

Mr. ZAPPONE. May I read the language of the appropriation?

The CHAIRMAN. Yes.

Mr. ZAPPONE. The language of the emergency appropriation made for the cotton boll weevil work reads:

EMERGENCY APPROPRIATION: To enable the Secretary of Agriculture to meet the emergency caused by the ravages of the Mexican cotton boll weevil and other insects and diseases affecting cotton; to study diversification of crops and improve cotton by breeding and selection in the Southern States, one hundred and ninety thousand dollars, or so much thereof as may be necessary. And the Secretary of Agriculture is hereby authorized to expend the said appropriation in such manner as he shall deem best, in cooperation with the State experiment stations and practical cotton growers.

The CHAIRMAN. Then do I understand that you have found a parasite?

Doctor HOWARD. There are several. We are studying several species which promise good results, and as the weevil comes into the Mississippi bottom lands (it is practically there now) other native parasites will naturally take hold of it. It is necessary to study those things to see what can be done with it.

The CHAIRMAN. Is that a kind of work which keeps them constantly employed?

Doctor HOWARD. Yes.

The CHAIRMAN. It employs their whole time?

(Witness: Howard.)

Doctor HOWARD. Yes. There are half a dozen or more men at the present time studying the question of the hibernation of the weevil in Texas, trying to find out something that we have not found out about it.

The CHAIRMAN. All at the same station or at different stations?

Doctor HOWARD. At different stations, and traveling from one point to another.

The CHAIRMAN. Is it necessary to have that number to get the breadth of result?

Doctor HOWARD. I think so.

The CHAIRMAN. That is, you would not feel satisfied with experiments or investigations by one man unless verified by four or five others?

Doctor HOWARD. No, it is not that; I did not mean that at all. The men are sufficiently trained so that we can feel certain of their observations when they report them; but we want different men in different places.

The CHAIRMAN. So as to demonstrate whether there are any different conditions prevailing?

Doctor HOWARD. Yes; undoubtedly there are. There is a vast difference between north and south Texas.

The CHAIRMAN. You have here "Entomological investigations; importation of useful insects."

Doctor HOWARD. Yes.

The CHAIRMAN. What is the character of that work?

Doctor HOWARD. The particular instance that we have on hand at the present time is the importation of the European parasites of the gypsy and brown-tail moths, which is going on with considerable success, and, I think, with very strong hopes of practical results.

The gypsy moth and the brown-tail moth, as you probably know very well, were originally European insects which were imported, the one by design and the other by accident into the vicinity of Boston a number of years ago. They were brought over without their European parasites. In Europe they are well known over the whole face of the continent and extending across the continental plateau of Asia clear to Japan; but they are in no place on either of those continents the striking pests that they are in Massachusetts. In Europe and Asia they appear occasionally one year in considerable numbers, and then they disappear and will not be seen, except for an occasional caterpillar, for a number of years. The reason of that is that there are native parasites over there that keep them in check. While the efforts of the State of Massachusetts were directed toward the extermination of the insects, there was no object in importing these parasites, but the moment the purpose of their efforts changed, and they began not to attempt to exterminate it but to hold it in check, they wanted the parasites.

We have brought over and liberated in the vicinity of Boston during the past year 65,000 specimens of the different species. They were studied in the laboratory and then they were liberated in the open in sections of woodland which were pretty sure not to be burned over, and in which there were going to be no operations against these insects. We succeeded last year in breeding through in the open two generations of several of these insects, and it seems to me that there

(Witness: Howard.)

is no reason in the world why they should not increase and do their work. It will take two, three, four, or perhaps even more years, but eventually the same conditions that exist in Europe can be brought about in New England—that is, they will check the moths.

The CHAIRMAN. Have these insects produced any appreciable results?

Doctor HOWARD. No, sir; not yet; but we know they are there and breeding, because we have seen them.

The CHAIRMAN. Are they beginning to do their work?

Doctor HOWARD. Yes.

The CHAIRMAN. Are those insects in themselves injurious?

Doctor HOWARD. It is impossible that they should do anything but destroy hairy caterpillars.

The CHAIRMAN. This is not like the introduction of the English sparrow?

Doctor HOWARD. No, sir; that is one example of this class of work to which you refer.

Some years ago we imported, as has been reported upon in our reports, the little wasp that fertilizes the Smyrna fig, and introduced it into California, making it possible for the first time to produce a crop of figs in California comparable to the Smyrna fig, and they have been turning out many thousand pounds of those figs at a price never before obtainable. That was the case of the establishment of a beneficial insect.

Some years before that we imported a little ladybird beetle from Australia, an enemy of the white scale, and the result of that was to save the orange and lemon growing industry of California, which was threatened with extermination by the scale insect. The little beetle multiplied to such an extent that it almost exterminated the scale insect. The money saved annually from the introduction of the Australian ladybird beetle will be about \$5,000,000.

About three years ago we imported into southern California a little parasitic fly from South Africa, which has resulted in its establishment and spread and the almost complete destruction of the black scale, which is a very serious pest, affecting the olive crop, and the oranges and lemons, as well as certain shade trees. The annual saving from the importation of the black scale parasite is estimated at \$250,000.

The CHAIRMAN. Is that an insect?

Doctor HOWARD. The black scale is an insect. Horticulturists refer to scale insects simply as scales. We have also imported other things from other parts of the world which are more or less in an experimental condition at the present time.

The instances I have mentioned are the most strikingly successful ones. We are trying, at the present time, to import a parasite of the apple worm from France. We do not know yet whether we will succeed or not.

The CHAIRMAN. You have here, "investigation of insects in direct relation to the health of man, \$2,500." What is that particular feature?

Doctor HOWARD. Investigations of mosquitoes and house flies, in relation to the carrying of malaria and typhoid fever and yellow fever. I published a little bulletin on how insects affect health in

(Witness: Howard.)

the rural districts, which has attracted a great deal of attention, and has very much interested the Assistant Secretary of Agriculture and other people.

The CHAIRMAN. What were the particular diseases which were propagated by insects?

Doctor HOWARD. Malaria, yellow fever, and typhoid fever.

The CHAIRMAN. Are those peculiar to any section of the country?

Doctor HOWARD. No; except yellow fever is peculiar to the South.

The CHAIRMAN. Was that in line with the investigations made in Cuba?

Doctor HOWARD. Quite so..

The CHAIRMAN. By the two army surgeons down there?

Doctor HOWARD. Yes, particularly so. The army surgeons demonstrated the carriage of disease by a certain species of mosquito. What we have done is to work out carefully the distribution of the yellow fever mosquito in this country, thus enabling us to establish accurate quarantines.

In 1905, the year of the New Orleans epidemic, the Public Health and Marine Hospital Service established their quarantine lines, and advised the States to do so, entirely on the basis of this investigation of the distribution of the insect, knowing that if a yellow fever patient came within the zone where this insect exists, the yellow fever had a chance to spread; but outside of that there was no use in quarantining at all, because the patient would be in a hospital and there would be no chance for it to spread.

The CHAIRMAN. That is, you did not find the mosquito that carried the disease?

Doctor HOWARD. The disease could not spread. In the same way we have investigated the malaria mosquito, and have tried to show the conditions under which it appears, and what they must do to prevent getting malaria. In the same way we have tried to show the agency of the house fly in the spread of typhoid fever. Unquestionably under certain circumstances the house fly is an agent in the spread of typhoid fever.

The CHAIRMAN. The house fly?

Doctor HOWARD. Yes.

The CHAIRMAN. What do you advise under those circumstances, to eliminate the imminent danger so far as you can?

Doctor HOWARD. Of the house fly?

The CHAIRMAN. Yes; and the mosquito, both.

Doctor HOWARD. In regard to the house fly, nothing could be simpler than to prevent entirely the breeding of house flies by the proper care of stables. Ninety-nine per cent of the house flies that we see in the cities and on farms breed in horse manure. If this is properly cared for and cleaned up day by day and put in a receptacle and carted off—a receptacle that is closed—it is impossible for house flies to breed, and you will not have any house flies around.

The CHAIRMAN. Is that so?

Doctor HOWARD. Yes.

The CHAIRMAN. You do not get any except in that way?

Doctor HOWARD. You do not get any except in that way, but when they are numerous they will breed in other substances. The box privy on the average farm and in the low quarters of the town, is

(Witness: Howard.)

a place where they sometimes breed. I advocate the abolishing of the box privy and the substitution of an earth closet, and the use of some process by which chloride of lime or some other substance will be put upon the surface. The house fly carries the disease only as it lights on the excreta of typhoid patients and then flies and lights on food. I have seen in an alleyway in the city, in a low quarter, excreta dropped evidently the night before, swarming with flies at 10 o'clock in the morning within 10 feet of the open windows of houses, the kitchens of which were full of food supplies. When we consider that active typhoid bacilli may be carried by a person for some weeks before the disease of typhoid is diagnosed, and that they may also be carried by a person for some weeks after that person is cured of typhoid; we can see what the danger is of the carriage of the disease by the house fly.

Of course you are all very well aware of the fact which was shown that the typhoid fever which carried off 75 per cent of the men who died in the concentration camps at the time of the outbreak of the Spanish war, according to the reports of Shakespeare and Vaughan and Reed, as they indicated in their reports, was not contracted from water or milk, but, in the majority of cases, the disease was carried by the house flies from the camp sink to the camp mess tables. This is a very interesting thing.

The CHAIRMAN. Then your method of providing against the contamination by flies is simply to eliminate the flies?

Doctor HOWARD. Yes; simply to eliminate the flies.

The CHAIRMAN. And is this the same method used in connection with the mosquitoes?

Doctor HOWARD. Yes; to abolish the breeding places of the mosquitoes in the same way.

The CHAIRMAN. And that is the only method of producing immunity?

Doctor HOWARD. Not the only method. The Italians have gone at the problem in what they call the "Black Belt" of Italy, beginning at the Campagna and running south to Naples in another way. They have gone through the Campagna and dosed all the peasants with quinine and other antimalaria substances, with the idea that if they abolish the malaria there will be no more malaria, because there will be no way for the mosquitoes to become infected; and in that way they have increased the health of the country and have reduced the malaria.

The Germans have gone at it in another way. They do not abolish the mosquitoes, but they protect the people from the mosquitoes by furnishing the people with mosquito bars free. Our way is the most thorough—by abolishing the mosquito. We can do that by drainage of wet lands and wet places, and by the introduction of fish into artificial ponds, and by pouring kerosene on the surface of water in breeding places of mosquitoes.

The CHAIRMAN. By pouring kerosene on the surface of the water?

Doctor HOWARD. Yes; it stops the breeding of the mosquitoes entirely.

The CHAIRMAN. Does it produce any disagreeable results?

Doctor HOWARD. No; except that it destroys some water plants; but

(Witness: Howard.)

you can introduce fish in artificial ponds that will eat up the wrigglers.

The CHAIRMAN. Are you continually enlarging the scope of your investigations?

Doctor HOWARD. As the emergencies demand it, Mr. Chairman. There is constantly, almost every year, a new aspect of insect damage coming up. Just within the last week I have had a Member of Congress from western Pennsylvania, with some of his constituents who are large grape growers there, come to my office and urge me to make an investigation of a new grape insect which is working at the roots of the grapevines. Almost every year something that is comparatively new comes up in that way.

The CHAIRMAN. So that it keeps your Bureau continuously employed?

Doctor HOWARD. Yes.

The CHAIRMAN. What do you look upon as the most valuable and useful lines of investigation that your Bureau has been engaged in in the line of producing results valuable to the agriculture of the country?

Doctor HOWARD. In a general way, or a specific way?

The CHAIRMAN. You might give two or three of the most striking typical illustrations.

Doctor HOWARD. I think the most striking things have been those in regard to the introduction of beneficial insects which I have already told you about; but the entire advance of the fighting of the San Jose scale, the most serious enemy of the horticultural industry, has been accomplished by our bureau. We first recognized the appearance of the insect in the east, and by our experiments with remedies, with washes and so on, we brought about the present system of fighting the San Jose scale which is now effective. It is by the use of a mixture of lime, sulphur, and salt.

We also introduced from China a ladybug which was an enemy of the San Jose scale, and established it in three or four different sections of the country; but we found out that it died out in the north, and while it bred in Georgia, the fruit growers were not content to wait for it to become sufficiently abundant to produce an effect, but insisted upon keeping up spraying, and the result was they killed off the imported beetle as well as the scale. But it is undoubtedly alive in outlying districts there, and any time they stop spraying it will have its effect.

At the same time, the invention and fixing of the standard insecticides now in use are due to the work of the Bureau of Entomology. The perfection of the method of spraying now in use generally all over the country of the codling moth is the result of our work. In fact, all the advances made in the way of fighting insects originated with us.

The CHAIRMAN. You mean the various preparations that are used for this purpose?

Doctor HOWARD. Yes, the preparations.

The CHAIRMAN. Were the preparations originally discovered and prepared by your Bureau?

Doctor HOWARD. Yes.

The CHAIRMAN. By experimental work?

(Witness: Howard.)

Doctor HOWARD. Yes.

The CHAIRMAN. And they have proved successful?

Doctor HOWARD. Yes.

The CHAIRMAN. And they have become commercial?

Doctor HOWARD. Not necessarily commercial, because all of our formulas are printed, and all of them can be prepared by the fruit grower himself at a less rate than he can buy the proprietary remedies for.

In the same way we have made the advances in the machinery for the application of insecticides. The best spray nozzle in use all over the world to-day was an invention of an employee of the Bureau of Entomology.

Mr. SAMUEL. You introduced the English sparrow?

Doctor HOWARD. No, sir. That was done by Dr. T. M. Brewer, of Boston, about 1867, if I am not mistaken.

Mr. SAMUEL. The English sparrow has become a greater nuisance than the insect it was designed to destroy?

Doctor HOWARD. Yes; very much more so. The same statement I have made holds, Mr. Chairman, in regard to the insects injurious to field crops. We have suggested many instances of variation in the cultural methods, which have succeeded in wiping out the insects very largely. A striking example of that was in the case of the clover seed midge, a little insect which laid its eggs in the flower of the clover, and which destroyed the clover seed, which is a very valuable crop. We discovered, after studying the full life history of the insect, that simply by cutting the first crop, the hay crop, ten days earlier than usual, the insect would be exterminated. Of course, that was based on life history work, the work of studying the life history of the insect.

Mr. SAMUEL. Have you discovered any preparation for potato bugs any more effective than Paris green?

Doctor HOWARD. No, sir; nothing more effective than that.

The CHAIRMAN. Did you ever investigate the borer?

Doctor HOWARD. The apple borer?

The CHAIRMAN. Yes.

Doctor HOWARD. Yes, we made quite a number of investigations; and we have published papers giving the results.

The CHAIRMAN. Have you any way of exterminating it except by physical destruction?

Doctor HOWARD. No, sir; no other method than that of physical destruction. There are several ways of effecting the physical destruction, however, and the most effective way is by the injection of a few drops of bisulphide of carbon under the bark of the tree.

The CHAIRMAN. Under the bark of the tree?

Doctor HOWARD. Yes.

The CHAIRMAN. In what month is that done?

Doctor HOWARD. I think in the month of May, if I am not mistaken. In many large apple orchards at the present time the proprietors have a large syringe which can be inserted through the bark, and they inject a few drops of bisulphid of carbon which destroys the insect underneath the bark. That leaves a little black scar, but it does not affect the health of the tree to any extent.

The CHAIRMAN. Does that destroy the borer wherever he may be found?

Doctor HOWARD. Yes; anywhere in that vicinity. If you are an orchardist you can tell about where he is if you are familiar with the appearance of trees.

The standard remedy for scale insects on the citrus fruit in California is the use of hydrocyanic gas under tents. That was entirely developed by the work of the Bureau.

The CHAIRMAN. Under tents?

Doctor HOWARD. Yes; under tents. They have a system of putting a tent over a tree and letting off a little of this gas, and the scale insects are all destroyed.

The CHAIRMAN. I think we have covered the ground. Do you think of anything further? [To Mr. Zappone.]

Mr. ZAPPONE. No, sir; I do not.

The CHAIRMAN (to Doctor Howard). You have given your view of the principal features which demonstrate the utility of the work of your bureau?

Doctor HOWARD. Yes; I think so. There are certain other aspects which are exhibited in my annual report. The activities are all exhibited under 14 or 15 different heads. The principal ones we have dwelt upon. We are doing work in bee culture, and also in silk culture and in a number of other directions.

Mr. SAMUEL. Have you any suggestions other than those you have already given?

Doctor HOWARD. I think not, sir.

Mr. ZAPPONE. I suggest that Doctor Howard mark the more important projects in his annual report and file them as an exhibit.

Doctor HOWARD. Will that be permitted?

The CHAIRMAN. Yes.

[From last Annual Report of the Bureau of Entomology.]

Practically all of the investigations under way in the Bureau of Entomology at the time of my last report have been continued with excellent results, and several new and important lines of work have been begun.

THE MEXICAN COTTON BOLL WEEVIL.

Encouraging progress has been made in the work against the Mexican cotton boll weevil, as shown by an extensive canvass of the cotton planters who have followed the recommendations of the Bureau.

Owing to climatic conditions in the summer and fall of 1904 and in the winter of 1904-5, some of the area that became infested late in the summer of 1904 was entirely devoid of weevils in the early part of 1905, but the fall movements of the weevil in 1905 more than covered this area. This permitted studies for which there had been previously little opportunity, and many points which had a bearing upon the possibility of the continued advance of the pest were investigated.

EXPERIMENTAL FARMS.

The continuation of the experimental farms at fourteen places in Texas has been deemed desirable, as the value of experimental field work depends largely upon the number of seasons through which it has been carried. Two additional experimental farms have been carried on in Louisiana. The whole acreage placed under contract in these experiments is 877.

The modifications in the cultural system of lessening damage, made necessary by the change in habits of the insect, were carefully studied in connection with the work carried on in the laboratory.

(Witness: Howard.)

OTHER FIELD WORK.

In addition to experimental plats on a large scale numerous field experiments were conducted, including an extensive experiment in the hand picking of infested bolls and considerable other work directed to the solution of questions which can not be tested with the fullest practical effect in the laboratory.

The continued spread of the weevil has been carefully watched, and publications regarding the new territory infested have been issued in cooperation with the Weather Bureau. Careful study has been made of the conditions in western Texas in order to determine whether the weevil is likely to spread to that part of the State in spite of the general idea that such spread will not take place.

LABORATORY WORK.

In the well-fitted laboratory now located at Dallas, Tex., the effects of different temperatures and the condition of food supply upon the development of the weevil were tested, the breeding of parasites was continued, and a special study was made of a native ant which seems to be becoming more and more an important factor in the natural control of the weevil. Investigations of the distribution of this ant, its adaptability to different soil conditions, and the possibility of its artificial propagation have also been made.

TRUE PARASITES OF THE BOLL WEEVIL.

Since the weevil entered Texas native parasites have had little effect upon it until recently. During the year, however, it was found that in the Brownsville region—first entered by the weevil about 1893—native parasites have accommodated themselves to its habits, and now at least 50 per cent of the early stages are sometimes destroyed by these parasites. Consequently much attention is being paid to the parasite question, in order to determine whether it will be possible to assist the work of these beneficial insects. It seems probable that the small results gained from the work of parasites down to the present time are largely due to the recent invasion of the cotton fields of the South by the injurious insect.

COOPERATION WITH THE LOUISIANA CROP PEST COMMISSION.

Cooperation with the Louisiana Crop Pest Commission, begun in 1904, was continued during the year, three assistants being employed by the Bureau for work in Louisiana. During the season of 1905 it was planned to enter upon an extensive study of the so-called migratory movement of the boll weevil in order to learn, if possible, some method of checking its further advances, or at least to learn more definitely the approximate time when other regions may become infested. On account, however, of the occurrence of yellow fever and the consequent rigid quarantine, it was impossible to carry on this work in full, but a number of important observations were made. In cooperation with the commission more than 25,000 weevils were carefully studied under natural conditions during the winter.

THE COTTON BOLLWORM.

The work on the cotton bollworm during the fiscal year was largely in the character of demonstrations, indicating the value of conclusions already reached and detailed in the last annual report of the Entomologist, and successful efforts were made locally in the extermination of the bollworm by means of poisons.

OTHER COTTON INSECTS.

The work on other cotton insects has been done largely in cooperation with the Texas Agricultural Experiment Station. A field agent of the Bureau was stationed at the Texas Agricultural College, devoting his attention to the other insects affecting the cotton plant. The important discovery has been made that it is possible to propagate the predaceous enemies of cotton plant-lice, an insect which sometimes causes great damage to young cotton. It is believed that this work will lead to a practical method of controlling the pest.

The general work done upon cotton insects of all kinds results in an annual saving to the country of not less than \$5,000,000.

(Witness: Howard.)

INTRODUCTION OF BENEFICIAL INSECTS.

The most important work in connection with the introduction of beneficial insects has been the importing from Europe of the parasites and predaceous enemies of the gipsy and brown-tail moths, in cooperation with the officials of the State of Massachusetts.

PARASITES OF THE GIPSY MOTH AND BROWN-TAIL MOTH.

It has been shown that it is an easy matter to bring the European parasites of these injurious insects to this country, simply by collecting numbers of the larvæ and chrysalides in different parts of Europe and sending them direct to Boston. A certain percentage of these insects on arrival in New England have given out the European parasites, which have either been cultivated in wire-gauze inclosures, with plenty of food, or have been liberated in the open, there being chosen for this purpose patches of woods not subject to forest fires or to remedial work against the insects. It has been ascertained further—and this is a fact hitherto unknown even to European entomologists—that the young larvæ of the brown-tail moth in their overwintering nests in Europe are extensively parasitized. Therefore, during the winter of 1905-6 over 117,000 nests of the brown-tail moth were collected in 33 different localities in Europe, ranging between North Germany, South Hungary, and West Brittany, and comprising a large range of varying elevations and climatic conditions. More than 70,000 parasites were reared from these nests on American soil. About 8 per cent of these were hyperparasites—that is, parasites upon parasites.

By means of specially constructed cages the hyperparasites were separated and destroyed. The primary parasites were placed in out-of-door cages or liberated in the open. The largest colonies included 10,000, 15,000, and 25,000 parasites, respectively. Owing to the very wet season a fungous disease prevailed among the caterpillars, vitiating to some extent the results of the experiments, but nevertheless three species of parasites were seen to lay their eggs in American-born caterpillars, and there is positive proof of the development on American soil of at least one complete generation of two of the European species. It has been shown that they may breed successfully through the season.

Egg parasites of the brown-tail moth have also been imported during the summer, and have been seen to lay their eggs in the eggs of North American injurious insects. Two important European predatory ground beetles have been successfully imported, and have bred through an entire generation upon American soil. Large numbers of *Tachina* flies have been reared from European specimens of the larvæ of both the gipsy moth and the brown-tail moth, and are breeding in the vicinity of Boston.

The greatest care has been taken to prevent the introduction of hyperparasites and other injurious insects, and there seems every reason to suppose that sooner or later the complete natural environment of both the gipsy moth and the brown-tail moth will be established in New England, placing them on a par with European conditions, thus greatly reducing their present importance.

NEW LADYBIRDS FROM EUROPE.

During the late winter months and spring of 1906 several species of European ladybirds, well known as destroyers of plant lice, scale insects, and soft-bodied insects of other groups, have been imported from Germany, France, and Austria. All of these have been liberated in the vicinity of the parasite laboratory at North Saugus, Mass., the country about being orchards and forests, with an occasional vegetable garden, promising plenty of food for the beneficial species.

THE KELEP OR GUATEMALAN ANT.

Efforts to successfully overwinter in Texas the kelep or Guatemalan ant, enemy of the cotton-boll weevil, have failed and a possible useful role for this insect in Texas is seemingly very slight. It is possible that this species may have some economic value in some of our tropical or subtropical possessions, where the climate will be more suitable than in Texas.

(Witness: Howard.)

THE SENDING OF USEFUL INSECTS ABROAD.

It is possible, in many instances, to secure the sending of beneficial insects by the official entomologists of other countries without expense to the Department, as was done notably in the case of the introduction of an important enemy of the black scale from the government of Cape Colony, South Africa. In return for such services and as an earnest for possible future courtesy of the same sort exportations of parasitic and predatory insects have been made, under the auspices of the Bureau of Entomology, to foreign countries. A notable instance has taken place during the fiscal year. A scale insect which occurs abundantly upon various fruit trees in portions of the United States is a serious enemy to the mulberry tree in Italy, and therefore large sendings of parasitized scales of this species have been shipped to Professor Berlese, director of the Royal Station for Agriculture and Entomology, at Florence. After arrival two species of parasites were bred in some numbers, and efforts are now being made to colonize them in Lombardy. It is hoped that they will prove effective aids in the eradication of the mulberry scale.

INSECTS DAMAGING FORESTS.

Investigations of insects damaging forests have progressed in a satisfactory manner in cooperation with the Forest Service of the Department. Numerous problems have been studied and a large store of general information upon forest insects has been accumulated.

Field work has been conducted from stations in West Virginia, North Carolina, South Dakota, Idaho, Washington, and California, the locations of the stations being determined by the advantages offered at the points selected for the study of some special problem or problems.

A special investigation was carried on in regard to the Black Hills beetle, which has extensively ravaged the forests in Colorado, and the results prove to be in the highest degree satisfactory and have been published in Bulletin 56 of the Bureau. The recommendations are now being actively followed by private persons with excellent chances of checking what might otherwise prove a most serious invasion.

The conditions in the Black Hills are not so encouraging, owing, doubtless, to the failure of the parties interested to realize the importance of the recommendations of the Bureau. These difficulties, however, have now been partially overcome, and all concerned seem alive to the seriousness of the situation.

Investigations in the South of the destructive pine-bark beetle and of a number of important insects injurious to forest products have been carried on, and studies have been made in regard to the insect enemies of forest reproduction. Special studies and recommendations have been made concerning the western pine-bark beetle in the region north of Boise, Idaho, and a study of the forest insects of the Pacific slope has been carried on.

INSECTS DAMAGING DECIDUOUS FRUIT TREES.

For the investigation of insect enemies of deciduous fruit trees field stations at Youngstown, N. Y., and Fort Valley, Ga., were carried on to the close of the growing season of 1905, and in the spring of 1906 others were started at Myrtle, Ga., and North East, Pa. Later another one was established at Nebraska City, Nebr. In the course of this work some studies have been made of the parasites of the San Jose scale, and experiments have been made with a number of insecticide mixtures. The chemical study of the lime-sulphur and other washes has been undertaken in cooperation with the Bureau of Chemistry. New studies have been made of the plum curculio. The peach borer has also been studied throughout its geographic range, and extensive demonstration work has been done in Nebraska on remedies for the codling moth, in cooperation with the Bureau of Plant Industry, which at the same time was dealing with the apple scab, combination treatments for both being carried on cooperatively. Cooperation in this work is also under way with the several other experiment stations and the Georgia State entomologist.

FIELD-CROP INSECTS.

The most important work in connection with field-crop insects has been upon the Hessian fly and jointworms, especial investigations having been made of the Hessian fly in the spring-wheat regions. It was predicted that this insect would

(Witness: Howard.)

not damage wheat in regions where the spring crop is exclusively grown. This has proved to be a fallacy, and by reason of remarkable changes in the life history of the insect it has adapted itself to the conditions existing in the far northwestern country. This means a radical modification in remedial work, and the studies have indicated that it will not be difficult to bring about conditions of comparatively small insect damage. Important results have also been reached in the study of parasites of the Hessian fly, which will probably have a marked effect upon the multiplication of the fly. In the same way the jointworm investigations have resulted in the acquisition of important knowledge, both regarding possible remedial work and the handling of parasites. Studies have also been made of clover seed and clover insects, and also of other field-crop pests.

The saving value of the work on insects injurious to the great field and forage crops is estimated annually at about \$9,500,000.

INSECTS AFFECTING VEGETABLE CROPS AND STORED PRODUCTS.

Work on insects affecting vegetable crops and stored products has been continued along the same lines as conducted in previous years. Insects affecting the sugar beet have been studied with care, and a special investigation has been made of a leaf hopper affecting this crop in Utah, Idaho, and Colorado. Many other insects of this group have been under careful observation, and results of value have been obtained. The saving effected annually by the use of measures based upon the work of the Bureau of Entomology against insects affecting vegetable crops and stored products is estimated at \$3,000,000.

INSECTS WHICH CARRY DISEASE TO MAN AND DOMESTIC ANIMALS.

The work of the Bureau on the subject of mosquitoes has been continued. A further study of the yellow-fever mosquito was made in the autumn of 1905, and experiments were made with remedies and methods of destruction against both larvæ and adults. Records have been brought together of the life histories and geographic distribution of the majority of the mosquitoes inhabiting North and Central America and the West Indies.

In the spring of 1906 a publication was issued upon the subject of the house fly, calling attention to its agency in the spread of typhoid fever, pointing out proper methods for its control, and urging the adoption of these methods by individuals and communities.

It was shown by observations made by the Bureau of Entomology upon a series of stables in two different sections of the city of Washington that it is a comparatively easy matter greatly to reduce the numbers of the house fly in any given community at a comparatively slight expenditure of funds and effort.

The investigation of the life history of the Texas cattle tick, mentioned in the last annual report, has been continued in cooperation with the entomologists of the States of Louisiana, Arkansas, Alabama, Tennessee, and South Carolina. This work has considerably increased our knowledge of the development of the tick, and in connection with this work the life history and habits of a number of other common ticks, frequently confused with the fever-transmitting species, have been investigated.

SCALE INSECTS AND EXPERIMENTAL WORK WITH INSECTICIDES.

This work, in special charge of the Assistant Chief of the Bureau of Entomology, has been continued. An immense amount of material in this group is sent in to the Bureau for identification and advice and the work grows in importance and value.

A thorough inspection was made of all new plants which the Department of Agriculture is importing from different parts of the world to detect and destroy any new insect enemies, principally scale insects, which might be brought in with them.

The work with insecticides has covered tests with standard insecticides, fumigation of mills, granaries, and dwellings against insect pests, and many new insecticide ideas or mixtures, which come to the Bureau for attention almost daily, have been examined and reported on.

Tests carried on upon a large scale and in a very thorough manner with sulphurous-acid gas have fully demonstrated its usefulness.

(Witnesses: Howard, Zappone.)

BEE CULTURE.

The work on bee culture has greatly increased. A large number of queen bees of different varieties were reared and distributed from the Department apiary, as well as from the substation at Chico, Cal. Investigations of the giant bees of India and the Philippines were continued through the year.

The various methods of queen rearing have been tested in rearing queens for distribution, and studies in bee diseases and in the important subject of honey-producing plants have been carried on.

SILK CULTURE.

There has been no change in the method and scope of the work on silk culture during the year. The correspondence was increased; a supply of eggs has been brought from Europe and distributed to correspondents in the United States: mulberry stock has been distributed, and cocoons have been purchased from correspondents and reeled.

OTHER INVESTIGATIONS.

Work on insects injurious to strawberry, raspberry, blackberry, and other bush fruits has been continued, and studies have been made of insects injurious to flower gardens and in greenhouses. An especial study of the insect enemies of roses is under way. The study of insects affecting shade and ornamental trees has also been continued, and an investigation has been made into the habits of the gaffies.

Routine work in the laboratory has greatly increased, and biological studies have been made of nearly 500 species not hitherto studied. Increase has also been noted in the work of determining specimens for the entomologists of experiment stations and other workers. Many thousands of specimens have been received for this purpose.

The CHAIRMAN (continuing). I notice under your cotton boll weevil investigations on page 249 that you have two items, one of "Advance to George P. Goll, temporary special disbursing agent," of \$2,602.39, and another item, "Advance to W. D. Hunter, temporary disbursing agent," of \$12,106.23. What sort of an advance is that? How does that \$12,000, for instance, happen to be advanced to Mr. Hunter?

Doctor HOWARD. He acted as what is called a temporary field disbursing officer. We tried it simply as an experiment during that year; we have since stopped it. When large parties of men are in the field their accounts come in monthly and we pay them by individual checks from the disbursing office. By this method of appointing a temporary disbursing officer that officer could pay the men's salaries and accounts from his central laboratory in central Texas. It is an arrangement common in the Government service. These accounts would be paid by Mr. Hunter at once, and he could be reimbursed later. Mr. Zappone can explain that much better than I can.

The CHAIRMAN. Did Mr. Hunter advance the money to the Government or did the Government advance the money to Mr. Hunter, for this purpose?

Mr. ZAPPONE. The Government advanced it to Mr. Hunter, who paid it out, just as any disbursing officer would in Washington. Under a general statute the head of a Department can appoint special fiscal agents in cases of emergency, such as travel abroad, necessitating the expenditure of money in connection with the Government work. It would be unfair to compel these men to pay such expenses from their private funds.

(Witnesses: Howard, Zappone.)

The CHAIRMAN. Who is it that audits these expenditures?

Mr. ZAPPONE. The accounts come direct to the Department and are given an examination both in the bureau and in the disbursing office. They are then transmitted to the Treasury Department and audited in the same manner as my accounts as disbursing clerk are audited.

Doctor HOWARD. As to the case of Mr. Goll, that was a foreign case. He was sent to Central America to investigate in regard to a parasite.

(At 4.45 o'clock p. m. the committee adjourned.)

LIBRARY.

JANUARY 19, 1907.

(Part of testimony, given on above date, before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF MISS JOSEPHINE A. CLARK, LIBRARIAN OF THE DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. You are the librarian of the Department?

Miss CLARK. Yes, sir.

The CHAIRMAN. How long have you held that position?

Miss CLARK. Since January 1, 1901.

The CHAIRMAN. Whom did you succeed?

Miss CLARK. Mr. W. P. Cutter.

The CHAIRMAN. What is the character of the library under your charge?

Miss CLARK. Agricultural and scientific.

The CHAIRMAN. Where is it located; in what building?

Miss CLARK. On the second floor of the main building of the Department of Agriculture.

The CHAIRMAN. Of how many volumes does it consist?

Miss CLARK. Over 93,000.

The CHAIRMAN. Do you have a catalogue?

Miss CLARK. Yes.

The CHAIRMAN. A card catalogue?

Miss CLARK. Yes, sir; a dictionary card catalogue.

The CHAIRMAN. Do you have anything in that library except professional and technical works?

Miss CLARK. We have no fiction.

The CHAIRMAN. Was there any at any time?

Miss CLARK. Yes; there were three or four hundred volumes of fiction and miscellaneous literature until about a year ago, when, in accordance with the act of Congress approved February 25, 1903, we sent publications not of use in the Department to the Library of Congress.

The CHAIRMAN. Do you have the public documents printed by the Government as a part of your library?

Miss CLARK. Yes, sir.

The CHAIRMAN. Does that include all the public documents?

Miss CLARK. Yes, sir; it includes the publications of the various Departments as issued by them, and also the sheep-bound set, as it is called, of the documents.

(Witnesses: Miss Clark, Zappone.)

MR. ZAPPONE. Is your library one of the designated libraries under the general statute?

MISS CLARK. Yes; a designated depository.

THE CHAIRMAN. What is the fact in relation to the value of these documents that are published and bound in sheep and sent to your library under the provision of the law, as to their utility and use? Are there any of them that are of no particular value? What is the fact about that, in a general way; if there are any, please state, according to your general experience?

MISS CLARK. We have quite frequent calls for certain documents, and when they are wanted, usually, it is in haste, so that we are very glad to have these documents deposited with us. If we had time to send to the superintendent of documents to get them without delay, we could dispense with many, if not all, of these documents; but on the whole, it seems desirable to keep the majority of the documents.

THE CHAIRMAN. Are there any for which there is no call?

MISS CLARK. In the sheep-bound set? Yes, sir; I think there are.

THE CHAIRMAN. What would they be? What are they?

MISS CLARK. On subjects not relating at all to the work carried on in the Department.

THE CHAIRMAN. Not relating to the agricultural work?

MISS CLARK. Yes.

THE CHAIRMAN. So that your library would not be perhaps a test of their general utility?

MISS CLARK. No; I think not.

THE CHAIRMAN. The people consulting your library do so principally for technical and professional purposes?

MISS CLARK. Entirely.

THE CHAIRMAN. And subjects that do not relate to the work of the Department of Agriculture could hardly be expected to be found in your library?

MISS CLARK. No, sir.

THE CHAIRMAN. So that you would not be able to judge about their general utility for that reason?

MISS CLARK. I would not.

THE CHAIRMAN. Is the library all in one room?

MISS CLARK. About two-thirds of it is in the main building, and the other third is in various bureaus and divisions at a distance from the main library.

THE CHAIRMAN. And those branches are under your charge also?

MISS CLARK. Yes, sir.

THE CHAIRMAN. How many branches are there?

MISS CLARK. The Forest Service, the Bureau of Animal Industry, the Bureau of Chemistry, the Bureau of Plant Industry, with its several divisions, the Biological Survey, the Bureau of Entomology, and the Bureau of Statistics. All of these libraries are under the control of the librarian.

THE CHAIRMAN. And they all aggregate the 93,000 volumes you have spoken of?

MISS CLARK. Yes; together with the books in the main building.

THE CHAIRMAN. Is it practicable to have those libraries all concentrated in one place?

MISS CLARK. I think not entirely. The books are used as tools, as

laboratory instruments, and it would be exceedingly inconvenient to have the technical reference books at a distance from the laboratory in which the work was being done.

The CHAIRMAN. Those of which they wish to make fairly general use?

Miss CLARK. Yes. In laboratory work of the Bureau of Chemistry, for instance, it would be very inconvenient to be obliged to send to the main library, three blocks away, for books which are needed for constant reference use and without delay.

The CHAIRMAN. In connection with their ordinary work?

Miss CLARK. Yes.

The CHAIRMAN. Could any more concentration be made of the library than now exists? That is to say, could any more of the books now distributed in the various branches with a view to reasonably accommodating the people who have occasion to make use of them be concentrated in one room?

Miss CLARK. Not until we have a larger building and more bureaus and divisions under the same roof.

The CHAIRMAN. Then one of the reasons, and perhaps the principal reason, why you are not able to make a concentration and have more books under the charge of persons in one room is on account of the size of the room?

Miss CLARK. I should not say that was the principal reason. The principal reason why these books are deposited at a distance is for the convenience of the bureaus and divisions.

The CHAIRMAN. You must have persons in charge of these various libraries, must you not?

Miss CLARK. Usually a person is designated in the bureau or division to take charge of the books deposited in the building.

The CHAIRMAN. Are those persons mentioned in the list under your name in the list of expenditures?

Miss CLARK. No, sir.

The CHAIRMAN. Those are simply persons detailed by the Bureau?

Miss CLARK. Yes.

The CHAIRMAN. What services do these persons render, that you have here in your schedule—that is, do they render service outside of your own library?

Miss CLARK. No, sir.

The CHAIRMAN. I suppose that you call your library the central library?

Miss CLARK. Yes; the main library. No, sir; they render no service outside of the main library.

The CHAIRMAN. How nearly up to date is the catalogue of your library?

Miss CLARK. It is practically up to date. Our annual accessions are kept up to date. There are a few classes not completely catalogued in the library, but we have a shelf list, which supplements the dictionary catalogue. We have a record of all the books in the library, but not all are recorded as yet in the dictionary catalogue.

The CHAIRMAN. That is the card catalogue?

Miss CLARK. That is a card catalogue; the shelf list is also on cards.

The CHAIRMAN. Was the library catalogue up to date when you took charge?

(Witnesses: Miss Clark, Galloway.)

MISS CLARK. No, sir.

THE CHAIRMAN. When did you get it up to date, roughly speaking, of course?

MISS CLARK. I should say two or three years ago.

THE CHAIRMAN. How many volumes do you add to that library each year?

MISS CLARK. We average over 4,000.

THE CHAIRMAN. I see that you have three persons here as cataloguers. I do not know whether they are ladies or gentlemen.

MISS CLARK. They are all ladies.

THE CHAIRMAN. Does it require all three of them to keep your catalogue up to date?

MISS CLARK. Yes. The first cataloguer is the cataloguer in charge, practically the head cataloguer, who supervises all the work, superintends the printing of the cards and also has charge of the library bulletin, which is printed; she has charge of the preparation of copy, the proof reading, and so forth, of this bulletin. The second cataloguer has charge of the technical periodicals which we receive.

THE CHAIRMAN. And that is current literature?

MISS CLARK. Yes. The third cataloguer has charge of the bindings of the periodicals, which requires considerable experience and knowledge of languages, as most of our accessions, especially periodicals, are in foreign languages.

THE CHAIRMAN. That is, you require a linguist for that place?

MISS CLARK. Yes. The fourth cataloguer is employed in general cataloging. The head cataloguer receives a salary of \$1,200, and the three other cataloguers receive \$1,000 each. They all have cataloguing to do, but the first two principally in connection with the periodical literature, our largest class of accessions.

MR. SAMUEL. Is the library of the Weather Bureau under your charge?

MISS CLARK. No, sir; it is not. During the past year I have purchased the books for the Weather Bureau. The clause providing for the purchase of books was left out of the Weather Bureau appropriation bill last year. The main library has purchased all books used by the Department in the city of Washington, with the exception of \$500 specifically appropriated for law books for the Forest Service.

THE CHAIRMAN. Do you know how that item happened to be left out of the appropriation bill?

MISS CLARK. In connection with the Weather Bureau?

THE CHAIRMAN. Yes.

MISS CLARK. No, I do not.

DOCTOR GALLOWAY. That matter was discussed quite fully before the Senate committee; it was decided to take action looking toward the concentration of all library purchases in the main library of the Department, and the authority to buy books was taken from a number of the bureaus; the Bureau of Plant Industry, the Bureau of Animal Industry, and the Weather Bureau.

THE CHAIRMAN. And vested in whom?

DOCTOR GALLOWAY. In the librarian of the Department.

THE CHAIRMAN. In Miss Clark?

DOCTOR GALLOWAY. Yes.

(Witnesses: Miss Clark, Galloway, Zappone.)

The CHAIRMAN. So that she is vested with the power of purchasing for these various libraries?

Doctor GALLOWAY. Yes.

Mr. ZAPONE. For the purpose of centralizing the work?

Doctor GALLOWAY. Yes.

The CHAIRMAN. How many employees did you have bringing the completion of the catalogue up to date; that is, about three years ago?

Miss CLARK. I think there are three additional.

The CHAIRMAN. Now, are we to understand that you have, for instance, three cataloguers now under the head of cataloguers, and that prior to 1903 you had six?

Miss CLARK. No; I do not understand your question.

The CHAIRMAN. What I really want to get at is this. I want to find out, if I can, how many people you had employed until you got your catalogue up to date.

Miss CLARK. We had fewer cataloguers three years ago than we have now. The work of the library increases constantly, and we need more assistance every year, with the increase of administrative and reference work, as well as cataloguing, in the library. Our accessions increase, and our general library work increases, so that we need more cataloguers now than we had three years ago.

The CHAIRMAN. I suppose that while you were bringing the catalogue work up to date you might have to have more people employed to bring the work up and keep up with the current work at the same time. I do not know about that.

Miss CLARK. The dictionary catalogue was begun when Mr. Cutter was appointed in 1893, and we have been working on it from that time up to now.

The CHAIRMAN. And you have more cataloguers now than you had then?

Miss CLARK. Yes.

The CHAIRMAN. Did you have less than 4,000 volumes of additions, say, three years ago?

Miss CLARK. No; that has been about the average for a number of years.

The CHAIRMAN. Would not that rather necessitate an increase in your force?

Miss CLARK. We could not keep up to date as we do now with the current accessions, if we had fewer cataloguers.

The CHAIRMAN. If a less number of cataloguers were able to bring your work up to date and keep up the current work also, why should you not be able to get along with still less when they are not burdened with bringing the catalogue up to date?

Miss CLARK. These cataloguers do a great many things in addition. For instance, they are quite accessible to the users of the main library, and they are frequently called away from their special work for reference work. The reference work has increased every year with the growth of the Department. One of these cataloguers also works on the index to the Department publications—one of those at a salary of \$840.

The CHAIRMAN. She works on the index to the Department's publications?

(Witnesses: Miss Clark, Zappone.)

MISS CLARK. Yes, on the index to the Department publications which is printed in card form.

THE CHAIRMAN. You have here 15 employees under you, and are they all employed about the library room that you have personal charge of?

MISS CLARK. Yes.

THE CHAIRMAN. And then in addition to that are there other librarians in the various bureaus?

MISS CLARK. There are clerks or librarians assigned to look after the publications deposited in the bureaus and divisions where any considerable number of books are deposited, to guard against loss.

THE CHAIRMAN. To illustrate, we have here under the Weather Bureau, H. H. Kimball, librarian and climatologist. I suppose that he combines his librarian's work with that of a climatologist, whatever it may be?

MR. ZAPPONE. He is both a librarian and a scientist?

MISS CLARK. Yes.

THE CHAIRMAN. Do these separate libraries that are located around in the separate bureaus require the attention of at least one individual or more?

MISS CLARK. Yes. In the case of the Bureau of Chemistry probably 2,500 or 2,800 books are filed there. Unless there is some one in charge of the books they might be taken from room to room, and it would be hard to discover where the books might be at any time they were wanted. All these books that are filed in the bureaus and divisions are charged in the main library; that is, we make a card for every book that goes out to every bureau and division.

THE CHAIRMAN. That is, from your room or from any of these other rooms?

MISS CLARK. If a book is charged to the library of the Bureau of Chemistry the person in charge of the books in that Bureau looks after the book and charges it to the person who wishes to borrow it from that special library.

THE CHAIRMAN. And reports to you?

MISS CLARK. If we call for it. She makes the record in her room. If someone comes to the main library and wishes a particular book, and if by consulting our book cards we find that it is charged to the Bureau of Chemistry, the librarian of that bureau is responsible for the book; if it is not on the shelves, she has a card showing who has borrowed it, and the book is returned to the main library for our use.

THE CHAIRMAN. In a case of that sort you would simply call up the room and see where the book was, and if it was out she would know where it was?

MISS CLARK. Yes; and she would return it to us if anyone in the Department wished to use it. If an individual borrows a book from the main library, we charge it to the individual, and call directly upon him for the return of the book, when needed. The necessity of having persons designated to look after these books is that there are so many deposited at a distance from the library, and so many of which are periodicals which are easily lost, it is economy to have some one to take charge of this valuable property.

(Witness: Miss Clark.)

The CHAIRMAN. How many people are there that are necessarily employed outside of your own room—where, as I understand it, is located the central library of the Department of Agriculture—or persons in charge of these bureau libraries?

MISS CLARK. I would like to say that I think they have in most cases additional duties to those of caring for the library.

The CHAIRMAN. Yes.

MISS CLARK. There is one in the Forest Service, one in the Bureau of Chemistry, one in the Bureau of Animal Industry, two in the Bureau of Plant Industry, one in the Bureau of Statistics, one in the Bureau of Entomology, and one in the Office of Experiment Stations.

The CHAIRMAN. How about the Weather Bureau?

MISS CLARK. The Weather Bureau library has always been independent of the main library of the Department. It has a librarian.

The CHAIRMAN. They have an independent library of their own?

MISS CLARK. Yes, sir. In the office of Public Roads, also, there is a clerk in charge of the library, but she does editorial work in addition to looking after the books. I think these assistants, almost without exception, have other duties; but they are responsible for the books deposited in these bureaus and divisions.

The CHAIRMAN. What work do these clerks do in your room. You have three or four here. What kind of duties do they discharge?

MISS CLARK. Beginning with which one?

The CHAIRMAN. Begin with A. R. Knapp.

MISS CLARK. She catalogues general works and also prepares the index cards for the publications of the Department.

The CHAIRMAN. Then she is really an additional cataloguer?

MISS CLARK. Yes; her work is cataloguing and indexing.

The CHAIRMAN. And is that of the other clerks the same?

MISS CLARK. MISS UPTON has charge of the loan desk—that is, charges books borrowed by individuals and those loaned to bureau and division libraries. That is a very responsible place.

The CHAIRMAN. Are all these employees employed all the while—that is, are they continuously occupied?

MISS CLARK. Yes.

The CHAIRMAN. So that they all have continuous duties to discharge?

MISS CLARK. Yes.

The CHAIRMAN. And it takes them all their working hours to dispose of their work?

MISS CLARK. Yes.

The CHAIRMAN. And you would say you had no more than really were absolutely necessary to efficiently carry on your library?

MISS CLARK. Yes. I should like additional assistants for bibliographical work and the preparation of indexes necessary in the work of the Department of Agriculture.

The CHAIRMAN. Do they index by subjects in the case of periodical literature, or simply by the publications?

MISS CLARK. Always by subjects—authors and subjects.

The CHAIRMAN. Of course, that involves a great deal of extra work?

(Witnesses: Miss Clark, Zappone, Galloway.)

MISS CLARK. Yes.

THE CHAIRMAN. So that you have a card catalogue that gives you access to all the various articles that are written on the subjects of agriculture?

MISS CLARK. We have not all our periodicals indexed. A very large force would be necessary to do that, as we subscribe for over 600 technical periodicals, and receive by gift over 300 agricultural and horticultural papers in addition, besides the publications of numerous scientific societies. Our accessions in periodical literature number between three and four thousand different titles each year, each made up of several parts or numbers, thus making many thousand pieces to be handled and cared for.

THE CHAIRMAN. Would you treat a monthly magazine as 12 numbers or 1 number; that is, in your estimate of 4,000?

MISS CLARK. As one of the titles estimated.

THE CHAIRMAN. If you took some agricultural magazine, you would treat that as one unit?

MISS CLARK. Yes.

THE CHAIRMAN. Instead of calling it 12? It would be 12 issues for one year, but simply one unit?

MISS CLARK. Yes.

THE CHAIRMAN. I think that is all I care to ask, Miss Clark.

MR. ZAPPONE. I would like to add that notwithstanding the work of the library has increased very much within the past five years, the appropriation during that time has increased only \$3,040. In other words, in 1903 the total appropriation for the library was \$18,000, and in 1906 was \$21,040, and the increase in the salaries during these five years has been only \$3,000. I do not doubt that the librarian is very much in need of additional help.

THE CHAIRMAN. I will ask Miss Clark this general question. In case of a new building with adequate and properly designed accommodations—I mean for library purposes—and large enough to accommodate all of the present and prospective needs of your library, would it be practicable to further centralize the library there so as to reduce the cost of handling and operation?

MISS CLARK. That would depend entirely on the number of bureaus which are now at a distance, that could be under the same roof and that could be reached by telephone and by pneumatic tubes for prompt delivery of books when called for.

THE CHAIRMAN. It would depend on the accessibility to the library?

MISS CLARK. Yes.

THE CHAIRMAN. So that they could call for books that they had only occasional use for?

MISS CLARK. Yes.

THE CHAIRMAN. They would have to have in each bureau the books they are using every day—the professional books and textbooks upon which they have to rely in their investigations?

MISS CLARK. Yes.

DOCTOR GALLOWAY. May I make a remark right there, as I happen to know about this?

THE CHAIRMAN. Yes.

DOCTOR GALLOWAY. The Bureau of Plant Industry is renting 16 or

(Witnesses: Miss Clark, Galloway.)

17. buildings, in which we maintain as many separate sets of books, but we do not maintain a separate clerk for each set, because that is not necessary. Each building also has a separate corps of charwomen. Now, it is supposed that when we get the new building completed we can have one force of charwomen, and that we will not need the special libraries we now have, but can concentrate them in one place, the main library of the Department.

The CHAIRMAN. Are these 16 or 17 sets of books duplicates?

Doctor GALLOWAY. No, sir; not duplicates.

The CHAIRMAN. They simply relate to the particular department where they are located?

Doctor GALLOWAY. Yes; we have pomology in one building, and the fruit books would be there. And then we have other divisions in other buildings, and the books on each of those subjects would be found there.

The CHAIRMAN. Then I will ask you if, in your judgment, with accommodations such as I have suggested in my question to Miss Clark, it would result in a reduction of the annual expenditures, and economy to the Government in the handling of the library?

Doctor GALLOWAY. I think it would.

The CHAIRMAN. I think that covers everything. You may make any statement that you would like to make.

MISS CLARK. I would like to call your attention to the centralization of the library work in the Department of Agriculture. Formerly, previous to Mr. Cutter's appointment, there were a number of independent libraries in the Department. Books were purchased from the appropriations for the different bureaus and divisions, and quite independent libraries sprang up. These libraries were finally subordinated to the main library, and under Secretary Morton the control of them was placed with Mr. Cutter; from that time this centralization of administration has continued to develop, until last year all the money spent for books for use in the Department, in Washington, was spent through the main library, with the single exception of the \$500 mentioned in connection with the purchase of law books for use in the Forest Service. Centralization of administration to a similar extent does not exist in the library of any other Department.

The CHAIRMAN. Does centralization of administration result in economy?

MISS CLARK. I think it does.

The CHAIRMAN. If so, briefly explain why.

MISS CLARK. Each bureau or division purchasing books for its own use without knowing the resources of other libraries from which it might borrow, is apt to result in unnecessary purchases. In other words, a great deal of unnecessary duplication is avoided. That is the greatest economy, I think. By avoiding duplication space is saved, as well as labor in caring for the additional volumes.

The CHAIRMAN. Has it been your experience that duplication has been an appreciable factor?

MISS CLARK. Yes; I think so.

The CHAIRMAN. In the past, in the Department?

MISS CLARK. Yes, in the past.

The CHAIRMAN. And could you make an intelligent approximation of the percentage of duplication?

(Witnesses: Miss Clark, Zappone.)

MISS CLARK. No, sir; I could not. I think considerable duplication is necessary on account of the number of scientists often needing the same book, and because of the scattered locations of the bureaus and divisions. A number of copies of many books are required in two or three or even more divisions as reference books; for example, Bailey's *Cyclopedia of Horticulture*.

MR. ZAPPONE. You do not mean that the work of the different divisions overlaps?

MISS CLARK. No, sir; not at all.

THE CHAIRMAN. But two or three different subjects may be treated in the same book, and in that case the book overlaps, being required in several divisions?

MISS CLARK. Yes, sir.

THE CHAIRMAN. And you have to purchase several copies, because, while that book is used in a certain division on one subject, it may also contain other things which are needed in other divisions?

MISS CLARK. Yes, sir.

THE CHAIRMAN. Can you make any reduction in expense by having the books purchased by one individual, or are you making any such reduction?

MISS CLARK. Yes, I think so; especially in the case of periodicals. A bid is sent out in November to a number of dealers, and I think something is gained in that way in the matter of periodicals.

THE CHAIRMAN. That is by combining them all in one larger sum you think you get a better rate than if they are bought in segments or different lots?

MISS CLARK. Yes; or by entering subscriptions with each publisher.

MR. ZAPPONE. I think that saving would be at least 10 per cent.

THE CHAIRMAN. What would be your judgment about that?

MISS CLARK. I think it is fully that.

THE CHAIRMAN. Roughly, what has been the amount of saving? What is about the amount expended for that purpose?

MISS CLARK. For periodicals?

THE CHAIRMAN. Yes.

MISS CLARK. About \$2,000 for the foreign and American periodicals.

THE CHAIRMAN. Ten per cent of that is practically \$200. Do you know whether the libraries that are carried on or that are provided for the use of the other Departments of the Government are thus coordinated and under one control?

MISS CLARK. I do not know of any that is so centralized in its organization.

THE CHAIRMAN. You do not know of any where this plan has been adopted and carried out to the full extent that it has been in the Department of Agriculture?

MISS CLARK. I do not know of any.

THE CHAIRMAN. What has been your experience in the library with respect to the durability of bindings, comparing law sheep with cloth, and assuming in each instance work of equal quality and equal care in handling? Which binding, in your experience, is the more durable?

MISS CLARK. Do you mean of the two that you have mentioned?

THE CHAIRMAN. Yes; the law sheep and the cloth.

(Witness: Miss Clark.)

MISS CLARK. The sheep crumbles, and we bind very little in it. It is not satisfactory.

THE CHAIRMAN. Which do you find, then, is the most satisfactory, the cloth?

MISS CLARK. We bind chiefly in half morocco.

THE CHAIRMAN. As between cloth and sheep, what do you say? I do not know whether you have had any experience.

MISS CLARK. We bind very few volumes in cloth also, so that our experience with the two kinds of binding, sheep and cloth, is too limited to make a comparison. Some of our large volumes we bind in duck.

THE CHAIRMAN. And buckram?

MISS CLARK. Yes; with buckram, which we find very satisfactory, and, for the cheaper bindings, very good.

THE CHAIRMAN. How do you find buckram as to durability as compared with law sheep?

MISS CLARK. It has been more satisfactory. We bind the books that are used most, however, in the best binding, morocco, and we avoid the use of the cheaper binding materials as much as we can.

THE CHAIRMAN. Is your experience such that you could state the average life of the law-sheep binding, how long it will last on the shelves?

MISS CLARK. I do not feel that our use of this binding is sufficiently large for me to answer definitely.

THE CHAIRMAN. To give us an intelligent idea?

MISS CLARK. No, sir.

THE CHAIRMAN. Do you think of anything more that you would like to state?

MISS CLARK. No, sir. I have some copies of my last annual report here.

THE CHAIRMAN. Is the use that is made of your library confined to the people in the Department, or do the public use it?

MISS CLARK. Frequently school teachers in the city come to the library to use it as a reference library, and scientists in agricultural colleges and experiment stations have been assisted considerably by it in the last two or three years. The libraries at the experiment stations and colleges are small, so whenever we are able to loan such institutions a book, a periodical, or a number of a periodical for a short time, and not interfere with the work of the Department, we do so.

THE CHAIRMAN. Do they make anything like a general use of the library in that way?

MISS CLARK. They do not use it as much as I should think they would. There are a few of these scientists who know the library well, having worked in it during their vacations, who use it considerably. We have sent books to 26 different States and Territories during the last year, from Maine to Hawaii, and from Oregon to Florida. Those who know the resources of the library and have once borrowed from it continue to do so and appreciate the privilege very much.

THE CHAIRMAN. Do you have any trouble in getting your books returned?

MISS CLARK. No, sir. It takes a little time in some cases. If a man goes into the field without returning the books charged to his account,

(Witnesses: Miss Clark, Zappone.)

it sometimes takes time to get the book or books left in his office or which he may have with him.

The CHAIRMAN. So that your library is open to the public for use, if they have occasion to use it?

MISS CLARK. Yes, sir.

The CHAIRMAN. Is there much general use of the library now, taking into account the Department people and the public; is your library used to any great extent?

MISS CLARK. Not to a great extent, except by scientific workers in the Department and in the agricultural colleges and experiment stations. Many letters asking for information relative to agricultural subjects and publications are answered by the library. But it is practically a reference library and not a circulating library.

The CHAIRMAN. It is a special scientific and technical library?

MISS CLARK. Yes.

The CHAIRMAN. Of course its use is almost confined to the professional and scientific classes?

MISS CLARK. Yes. We have several exceptionally large collections relative to special subjects. Botany is one of these. It ranks second or third best in the country. Our collection of books and pamphlets on entomology is in the first rank; probably the very first in economic entomology. I am told by the Entomologist that it is probably the best in the world on economic entomology.

The CHAIRMAN. Is that in the nature of a museum?

MISS CLARK. No, sir; I refer to books.

The CHAIRMAN. And subjects illustrative of the literature?

MISS CLARK. Books and pamphlets relative to entomology.

The CHAIRMAN. Relating to that particular subject?

MISS CLARK. Yes.

The CHAIRMAN. I got the impression that you had articles of a different character?

MISS CLARK. No, sir; books and pamphlets relative to entomology. There is an excellent collection of books and periodicals relative to chemistry also. The collections relating to forestry and veterinary science are among the first.

The CHAIRMAN. Do you intend to have on hand all of the current literature relating to the subjects? For instance, you have works on veterinary science. Is it your purpose to keep your library up to date in connection with all the current publications; that is, not only periodicals, but text-books that may be issued by men writing upon veterinary science, for instance?

MISS CLARK. Yes, sir.

The CHAIRMAN. You calculate to keep up to date on all branches?

MISS CLARK. Yes.

The CHAIRMAN. So that the recent and current literature is accessible at all times?

MISS CLARK. Yes.

Mr. ZAPPONE. You have that all card indexed so that you can get a volume within a very short time?

MISS CLARK (interrupting). Yes.

Mr. ZAPPONE (continuing). On any scientific subject that may be under investigation or study in the Department; if a volume is

(Witnesses: Miss Clark, Zappone.)

needed, they send to you, and you refer to your card index and get it out?

MISS CLARK. Yes. The scientists in the Department send in requests for such publications as they need, and purchases are made largely in response to these requests for technical literature in connection with their work.

MR. ZAPPONE. Provided you have not the volume in stock.

MISS CLARK. Yes; we borrow also a great many volumes from the Library of Congress and from other Department libraries, when the books are only occasionally referred to. In many cases, instead of buying a book which is needed occasionally, for a short time, I find out if the book is in the city, and if it is, borrow it, usually from the Library of Congress or from another Department library. Often we send to New York, Boston, Cambridge, and St. Louis for books that can not be found elsewhere in the country. We receive many courtesies in this direction.

THE CHAIRMAN. Are they books which are out of print, practically out of print, or simply unusual and extraordinary? That is to say, are they books that are out of the usual line, and therefore difficult to get?

MISS CLARK. Very often they are rare books, and they are often expensive books that we would not be justified in purchasing for the occasional use that we might have for them. For this reason we make use of the system of interlibrary loans now established among the large libraries in this country. We reciprocate whenever we can in loans to these libraries that do us similar favors.

THE CHAIRMAN. That is, instead of aiming to have on hand all the literature that relates to a subject, your purpose is to have so much of the literature as is of general use by the scientific people who have occasion to use the library?

MISS CLARK. Usually the books we borrow are either very expensive or rare books, or on kindred subjects not relating definitely to our work. We intend to have everything in our library that relates specifically to the work of the Department.

THE CHAIRMAN. That is, it is your purpose to do that?

MISS CLARK. Yes. I understand that the Librarian of Congress looks to our library to be more complete along our specific lines than even the Library of Congress; otherwise there would be an unnecessary duplication of many books. That library can borrow from our library as we borrow from it, for occasional use.

THE CHAIRMAN. I think that is all. We are very much obliged to you, Miss Clark.

BUREAU OF CHEMISTRY.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
Monday, January 21, 1907.

The committee this day met.

Present: Messrs. Littlefield (chairman) and Samuel.

STATEMENT OF DR. H. W. WILEY, CHIEF BUREAU OF CHEMISTRY, DEPARTMENT OF AGRICULTURE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You are Chief of the Bureau of Chemistry?

Doctor WILEY. Yes, sir.

The CHAIRMAN. I would like to ask you whether or not all the employees in your Bureau are, so far as their salaries and promotions are concerned, subject, in the first instance, to your direction and control, and if your action thereon is finally subject to the approval of the Secretary of Agriculture?

Doctor WILEY. That is, I believe, the usual course. I do not know of any exception to that rule.

The CHAIRMAN. That is the practice?

Doctor WILEY. Yes, sir.

The CHAIRMAN. So that in a sense you are the responsible head of the personnel?

Doctor WILEY. Yes, sir; I am.

The CHAIRMAN. Are there any persons employed in your Bureau who have employment elsewhere?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Are there any persons employed in your Bureau who have employment under the Government elsewhere?

Doctor WILEY. No, sir; not to my knowledge.

The CHAIRMAN. How many employees have you that have employment under your Bureau who are engaged in private employment?

Doctor WILEY. I should say there might be five or six altogether, so far as my knowledge extends. I think I know about everyone employed anywhere.

The CHAIRMAN. What private employment are those five or six engaged in?

Doctor WILEY. I do not think any of them is engaged in any private employment, except perhaps in one instance. There is one clerk, Miss Agnes M. Nordeman, who, by permission of the Secretary, has done a few evenings' work for a private firm in auditing their ac-

(Witness: Wiley.)

counts during the winter. She is a clerk at \$720. According to our rules, anyone who wishes to do any work outside must make an application, first, to the chief of the Bureau. This is then submitted to the Secretary, with a full statement of the facts, and if approved by him the permission is granted. That is the only one. She is not doing any private work now. That was only for a half dozen evenings in the winter.

The CHAIRMAN. That is a minor matter.

Doctor WILEY. Yes, sir; a very minor matter.

The CHAIRMAN. Who is the next one?

Doctor WILEY. I think there are four or five people employed by the day and only paid for the number of days' work they do.

The CHAIRMAN. What do you call them?

Doctor WILEY. On page 228 you will find the first one, Mary E. Pennington, who is employed in Philadelphia. She is a bacteriological chemist with a very high reputation. She is employed at a per diem of \$7.25. This lady does much bacteriological work for the city of Philadelphia.

The CHAIRMAN. On days other than when she receives compensation from your Department?

Doctor WILEY. Yes, sir.

The CHAIRMAN. She does additional work for the city of Philadelphia?

Doctor WILEY. She does some work for the city of Philadelphia every day in the health office.

The CHAIRMAN. Every day?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Some of the work for the city of Philadelphia is done on days when the Government pays her?

Doctor WILEY. Some; but she charges by the hour, so many hours making a working day.

The CHAIRMAN. What does she get?

Doctor WILEY. She was paid \$634.37 last year.

The CHAIRMAN. That was at the rate of \$7.25 per diem—that is, per day?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Under that she would have worked nearly a hundred days?

Doctor WILEY. Yes, sir.

The CHAIRMAN. On those same days, if I understand, she was also rendering service to the city of Philadelphia?

Doctor WILEY. Part of the time. She works about two hours a day for the city of Philadelphia.

The CHAIRMAN. How many hours does she work for the Department?

Doctor WILEY. How many hours for the Department?

The CHAIRMAN. She works some hours for the city of Philadelphia and some for your Bureau?

Doctor WILEY. When she works only part of the day, she charges at the rate of \$7.25.

The CHAIRMAN. How much is that per hour, or how many hours?

Doctor WILEY. Seven hours' work.

The CHAIRMAN. She gets about \$1.03 per hour?

Doctor WILEY. One dollar and a few cents; yes, sir.

The CHAIRMAN. Are her accounts rendered to your Department on the basis of hours?

Doctor WILEY. No, sir; on the basis of days, but she is instructed to base the days on the aggregate number of hours.

The CHAIRMAN. It involves a count of the hours that she works for you?

Doctor WILEY. Yes, sir.

The CHAIRMAN. And when those hours reach seven she renders that as one day?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Is not that a peculiar way of arranging it? Why is it not more accurate for your Department, if she is working by the hour, to render the account by the hour?

Doctor WILEY. It probably would be. I do not know that it would be any more accurate, because—

The CHAIRMAN (interrupting). It would be more in detail?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Of course the way this appears in your accounts in the Department it is evidently per diem, which hardly indicates the exact character of the transaction. It may be all right; I am not intimating that it is not. Seven dollars and twenty-five cents per diem is one thing and \$1.03 an hour is another thing—a rather odd sum per hour, is it not?

Doctor WILEY. This was based on the compensation of \$2,000 a year, if she was working by the year, and it was calculated that the number of working days in the year multiplied by \$7.25 would make \$2,000.

The CHAIRMAN. She is getting more than \$2,000 a year at the rate of \$7.25 per day. About how many working days are there—three hundred and twelve?

Mr. ZAPPONE. About three hundred and twelve.

The CHAIRMAN. That would be \$2,262 a year, at \$7.25 a day. She is getting more than at the rate of \$2,000 a year?

Mr. ZAPPONE. If you allow for holidays in addition to Sundays it will bring it down pretty close to three hundred days.

The CHAIRMAN. There are only three or four holidays?

Mr. ZAPPONE. There is January 1, February 22, May 30 (Decoration Day), July 4, Labor Day, Thanksgiving Day, and December 25.

Mr. SAMUEL. Are they not allowed thirty days' leave?

Mr. ZAPPONE. Not temporary per diem employees.

The CHAIRMAN. Does your Department work on the seven-hour basis or the eight-hour basis?

Doctor WILEY. It is from 9 to 12, and from 12.30 to 4.30. That is seven hours.

Mr. ZAPPONE. The law requires seven hours of labor, and that is why they put on the extra half hour, to offset the half hour taken for lunch.

The CHAIRMAN. The law requires seven hours' work in the Department?

Doctor WILEY. Yes, sir.

Mr. ZAPPONE. Does she not work seven hours some days in addition to the two hours she works for the health department? That is, can

(Witnesses: Wiley, Zappone.)

she not make a full day's service for the Department in addition thereto?

Doctor WILEY. Yes, sir; by extra work.

Mr. ZAPPONE. Does she do that?

Doctor WILEY. Yes, sir; that is all possible.

The CHAIRMAN. Does she keep her own time?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Have you any other employees there?

Doctor WILEY. No others.

The CHAIRMAN. Your Department has no other representative in Philadelphia?

Doctor WILEY. No; not in charge of her time.

The CHAIRMAN. Has your Department any other representatives there?

Doctor WILEY. Yes, sir. We have a laboratory in the appraiser's stores, but it is not at all connected with this lady's work.

The CHAIRMAN. She has a laboratory of her own?

Doctor WILEY. Yes, sir.

The CHAIRMAN. That is, a private laboratory?

Doctor WILEY. Yes, sir.

The CHAIRMAN. What is her particular work?

Doctor WILEY. The work authorized by Congress in the study of cold-storage effects upon food products.

The CHAIRMAN. Have you any other scientists upon work in that branch?

Doctor WILEY. Yes, sir; in Washington.

The CHAIRMAN. How many?

Doctor WILEY. Three or four in our Bureau.

The CHAIRMAN. Have you any elsewhere than in Washington and Philadelphia?

Doctor WILEY. No, sir. We only control two cold-storage houses.

The CHAIRMAN. What is the occasion of the work there, to verify your work here?

Doctor WILEY. We have to duplicate parts of the work in order to be sure it is coming out in both places.

The CHAIRMAN. One verifies the other?

Doctor WILEY. Yes, sir. And also we have some additional work which we are not doing here. For instance, the work as to the effect of cold storage on milk and cream.

The CHAIRMAN. Why could you not do it here?

Doctor WILEY. We probably could do it here.

The CHAIRMAN. Are not these three men you have here perfectly competent to make those experiments and investigations?

Doctor WILEY. They are probably competent, but I do not think any of them is as competent as this lady, who has had much larger experience than these persons.

The CHAIRMAN. What do you pay the people here?

Doctor WILEY. They are a part of the regular force.

The CHAIRMAN. How much do you pay them?

Doctor WILEY. One gets \$3,000—Doctor Bigelow. He only gives part of his time to this work.

The CHAIRMAN. How much lower are the compensations?

Doctor WILEY. Some are as low as \$1,800 and \$1,500.

(Witness: Wiley.)

The CHAIRMAN. Any at \$2,000?

Doctor WILEY. Yes, sir; one or two.

The CHAIRMAN. The gentleman who is doing the same work this lady is doing on the basis of \$7.25 a day gets \$3,000?

Doctor WILEY. Yes, sir; Doctor Bigelow.

The CHAIRMAN. He is the chief of the laboratory?

Doctor WILEY. Yes, sir.

The CHAIRMAN. How many men under him do this experimental work in connection with cold storage and its effect upon food products?

Doctor WILEY. Mr. George E. Patrick is helping in this work.

The CHAIRMAN. He gets \$2,000?

Doctor WILEY. Yes, sir. E. M. Chace, an assistant, at \$1,800; F. C. Cook, physiological chemist, at \$1,400, and George W. Stiles, bacteriological chemist, at \$1,600.

The CHAIRMAN. Are those all engaged on the cold-storage proposition?

Doctor WILEY. There are other members of the laboratory who occasionally assist in that work.

The CHAIRMAN. That is simply as they are called in, or do they make original independent examinations on their own account?

Doctor WILEY. No, sir; as called in to assist.

The CHAIRMAN. They reach a stage of the experiment where the assistance of another man is needed in order to carry it along?

Doctor WILEY. Yes, sir.

The CHAIRMAN. I am thoroughly unfamiliar with the whole method.

Doctor WILEY. Mr. Chairman, when Congress authorized this investigation it was somewhat new to us. We had no employees who were strictly bacteriological chemists, and so there was an examination held by the Civil Service Commission, and this lady in Philadelphia obtained the highest mark of all the applicants.

The CHAIRMAN. That being the case, and they conducting the same kind of experiments here, with the exception of milk and cream—and that could be conducted here—why is it not business to transfer her to Washington to take the place of one of the men getting \$2,000?

Doctor WILEY. The cold-storage establishments in Philadelphia are very far superior in appointments to those in Washington, and we think it advisable to conduct more than one set of experiments. That is a very important problem.

The CHAIRMAN. If they have the conveniences over there for the conduct of these experiments, why is it not better to conduct all the experiments there than here?

Doctor WILEY. I do not make any difference between the value of the two experiments; they are of equal value.

The CHAIRMAN. I rather gathered that on account of their cold-storage buildings and appliances the facilities in Philadelphia were superior to those here.

Doctor WILEY. It is a better cold-storage establishment.

The CHAIRMAN. And therefore likely to give you more accurate and satisfactory results?

Doctor WILEY. I think it is very important to carry on the experiments both in a cold-storage establishment of this kind and one,

(Witness: Wiley.)

perhaps, of the very poorest. I do not say that Washington is the poorest. It is certainly as well suited to the work as the one at Philadelphia, because in this country most of the cold storage, I think, is conducted in houses similar to those here and very little in houses similar to those in Philadelphia.

The CHAIRMAN. This plant would be more nearly a parallel to the plants in the country?

Doctor WILEY. Yes, sir; and in Philadelphia they are what they all ought to be.

The CHAIRMAN. Your judgment is that it is necessary to have at least two sets of experiments going on?

Doctor WILEY. I think it is highly important that there should be two.

The CHAIRMAN. So that one may correct and verify the other?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Just explain what this lady does do in Philadelphia which is substantially what is done here. What I want to get at is the kind of work she does that involves time.

Doctor WILEY. You understand, first, that she does work only at stated intervals, not all the time for us.

The CHAIRMAN. I understand.

Doctor WILEY. Because the effect of the cold storage is a matter of time and there would be times when she would practically give all her time to us, except two hours she spends in the laboratory doing the bacteriological work there for the health office.

The CHAIRMAN. During that time what is she doing?

Doctor WILEY. Her principal work is to control the examinations, bacteriological and chemical, of the phlegm from the throats of diphtheritic patients. That is her special work for the health department.

The CHAIRMAN. That is in Philadelphia?

Doctor WILEY. Yes, sir.

The CHAIRMAN. I mean when she works for the Government?

Doctor WILEY. I will give you an illustration of her work with milk, which will exemplify what she is doing. The milk is first inspected by her at the dairy where it is produced to see the conditions under which it is produced and to see that it is wholesome, sound milk.

The CHAIRMAN. She goes to the dairy?

Doctor WILEY. Yes, sir. Every time a new lot of milk is put into the cold storage she supervises it and she visits the dairy at periodic intervals between times to see that the conditions are kept up.

The CHAIRMAN. Does she make a chemical analysis?

Doctor WILEY. Yes, sir; chemical and bacteriological. Then the milk bought here is placed in the container and she sees that it is transported to the cold storage and placed in the cold storage at the proper temperature. Then, at the end of stated intervals, sometimes in the case of milk every two weeks, and in the case of other substances at longer intervals, she withdraws the samples from the cold storage and makes the investigations to see what changes have taken place and what are their probable relation to health, according to the direction of Congress. This is done as long as the milk remains sound. In cold storage milk will remain sweet for two or three

(Witness: Wiley.)

months. She studies the changes which take place in this milk at intervals during this period.

The CHAIRMAN. What is the purpose of that?

Doctor WILEY. First, to determine the effect of the chemical composition and the effect of the substance upon health. She does the same with cream and with butter in cold storage, and she also studies the effect of cold storage on domesticated fowls, drawn and undrawn, and the migration of the organisms from the undrawn fowl through the flesh of the animal at intervals of two or three months in cold storage.

The CHAIRMAN. The migration is the dissemination through the body?

Doctor WILEY. It is claimed, for instance, that it is not wholesome to store fowl undrawn, so we have placed in cold storage large numbers of fowl of the same character, half of them drawn and half of them undrawn, and those are taken out both in Philadelphia and here at intervals of three months and complete bacteriological and chemical studies made of the changes which take place.

This woman is considered by the authorities to be the most competent person in this country to do that work, and she is recognized as such by the health authorities of Philadelphia, and she has the reputation all over this continent and other continents as being best qualified for that kind of work, and that is the kind of work she is doing for us.

The CHAIRMAN. How old is she?

Doctor WILEY. About 32 or 33 years of age.

The CHAIRMAN. Where was she educated?

Doctor WILEY. In the University of Pennsylvania, first taking the regular course and then the course of Ph. D., and in the Women's Medical College the degree of M. D.

The CHAIRMAN. That is with reference to milk and cream?

Doctor WILEY. And fish and meat.

The CHAIRMAN. How long have these experiments been going on?

Doctor WILEY. About eighteen months; ever since Congress authorized them, two years ago, as soon as we could get them started.

The CHAIRMAN. How long will it be necessary to continue the experiments in order to demonstrate the conditions that you are seeking to ascertain?

Doctor WILEY. We laid out a course for three years because it is not uncommon to keep food in cold storage for that length of time; it is not at all uncommon. That, we think, will cover the practical ground. Then if points remain undecided, we are placing new portions so we can continue any investigation that is not made clear.

The CHAIRMAN. In making these investigations are you keeping samples of these various products in continuous cold storage?

Doctor WILEY. Yes, sir.

The CHAIRMAN. For the three-year period?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Without opening it?

Doctor WILEY. Yes, sir; they are all put into packages, those to be taken out in one package, so as to remove them—

The CHAIRMAN (interrupting). Without affecting the remainder?

Doctor WILEY. Yes, sir. We merely go in, take a package, and

(Witness: Wiley.)

immediately close the doors. We have thermometers in there and the temperature is reported every day by the authorities of the cold storage establishment. We lease this place and they agree to take the temperature at the stated intervals; we also have our own thermometers, maximum and minimum, to verify the temperature.

The CHAIRMAN. You are doing here what she does there?

Doctor WILEY. The same thing.

The CHAIRMAN. Why do you keep so many men here? Is not one able to take care of the experiments?

Doctor WILEY. These men only work at intervals. We do not work on these experiments all the time; we have not the samples all the time. We withdraw the samples from time to time. The men working here work all the time constantly on other matters.

The CHAIRMAN. Are they kept constantly employed?

Doctor WILEY. Yes, sir. All the people are regular employees and they work all the time and are assigned to this work or that work. They are always ready.

The CHAIRMAN. And you arrange the work so that they are kept occupied all the time?

Doctor WILEY. Yes, sir; they are never idle for a moment.

The CHAIRMAN. Give us the next case of a person engaged in private employment. By private employment I include all employment except that by the Government.

Doctor WILEY. A. G. Woodman, of Boston. He has worked at a compensation of \$6 per day. Doctor Woodman is a professor in the Boston Institute of Technology. We have in Boston a laboratory for the inspection of imported food products with a regular force. Now and then there is a very large influx of samples, which makes it quite impossible for our regular force to keep up with the work. Doctor Woodman is then called upon for assistance by the chief of our laboratory there to tide over this event. He works under the supervision of our regular chief of the laboratory at that place.

The CHAIRMAN. Does this official report his time?

Doctor WILEY. Yes, sir.

The CHAIRMAN. He is only called in semioccasionally, because his compensation is only \$114?

Doctor WILEY. Yes, sir. Those are the only two people working for us on a per diem. Dr. A. W. Bitting, near the top of the page, is a professor in the Purdue University, at Lafayette, Ind. He has been employed at a regular salary of \$55 a month.

The CHAIRMAN. For five months?

Doctor WILEY. Yes, sir. He gives to us only a part of the time each month. He works under my personal direction by letter. I do not, of course, direct him personally, but his work has been the study of the causes which produce the swelling of canned goods, the incipient decay, and the changes which take place therein. He has done very valuable service for us of the highest character.

The CHAIRMAN. Is the time he renders continuous and consecutive?

Doctor WILEY. Yes, sir; he does work every month.

The CHAIRMAN. During the whole month?

Doctor WILEY. I do not suppose he works any one whole day, because he is a teacher in the university.

The CHAIRMAN. Then how do you get at his compensation?

Doctor WILEY. He reports every month the work that he does for us and we pay him by the month instead of by the piece, because in that case it would be quite impossible, I think, to give him the proper compensation.

The CHAIRMAN. Does he report so many days in the month or a month in a lump sum?

Doctor WILEY. Not the number of days. He reports to us the amount of work. He makes a monthly report.

The CHAIRMAN. At the end of a month does he report a month's service?

Doctor WILEY. Yes, sir.

The CHAIRMAN. A whole month's service, but during that whole month he is occupied only part of the time?

Doctor WILEY. Yes, sir. If he worked for us all the time his service would be worth at least as much as the pay of these special agents who are paid a large salary. We made his salary small so as to be sure it would never exceed the amount of service rendered to us.

The CHAIRMAN. Sometimes more and sometimes less?

Doctor WILEY. Yes, sir; sometimes more and sometimes less, but it is always enough to—

The CHAIRMAN (interrupting). How does it happen that he has only worked five months in the year? Does he not work all the year around?

Doctor WILEY. He was only appointed for five months during this fiscal year. He did not begin until seven months of the year had passed.

The CHAIRMAN. There were only five months that he could be paid?

Doctor WILEY. Yes, sir. He still works for us this year on the same salary.

The CHAIRMAN. And renders a bill per month?

Doctor WILEY. He renders his report every month and is paid on a regular voucher.

The CHAIRMAN. At the end of every month he renders a voucher for the month's service at \$55?

Doctor WILEY. Yes, sir.

Mr. ZAPPONE. And certifies that he has performed that service.

The CHAIRMAN. And he gives more or less of his time each month?

Doctor WILEY. Yes, sir.

The CHAIRMAN. You have no way of knowing whether it is more or less?

Doctor WILEY. Except from the amount of work that he reports. We are perfectly satisfied that he earns his salary from the work itself.

The CHAIRMAN. And you keep track of it for the purpose of being advised on that fact?

Doctor WILEY. I do myself. He reports to me personally.

The CHAIRMAN. What salary does he get as professor in the college?

Doctor WILEY. Two thousand dollars. I will not be certain, but I think it is \$2,000. I used to be in the same university, and I know what they pay. That is about the regular salary.

The CHAIRMAN. So that practically gives him a salary of \$2,660.

(Witness: Wiley.)

Doctor WILEY. I think in the work he did for us in the five months he threw more light on the causes of the decay and swelling than had ever been given before, and it is a practical matter to the canners. It is worth hundreds of thousands of dollars to them.

The CHAIRMAN. You think you get full value?

Doctor WILEY. Yes, sir; we get a great deal more than he gets out of it.

The CHAIRMAN. Please tell us the next one.

Doctor WILEY. Those are the only two persons employed in that way.

The CHAIRMAN. That makes three that are so employed.

Doctor WILEY. There is one other, William B. Alwood, employed for one month. We got him to make some special investigation of the cider factories, and paid him at the rate of \$1,200 for a month's service.

The CHAIRMAN. Is he now in the employ of the Government?

Doctor WILEY. Yes, sir; he passed an examination and has been put on the regular roll, only during the last month.

The CHAIRMAN. At what rate?

Doctor WILEY. Two thousand dollars a year. He has now become a regular employee and gives his whole time. I speak only of the work specified in this report.

The CHAIRMAN. You have no men in your Department, have you, that are on the rolls of any other bureau in the Department of Agriculture or any other Department of the Government?

Doctor WILEY. No, sir; none whatever, to my knowledge.

The CHAIRMAN. Has there ever been any?

Doctor WILEY. Never to my knowledge.

The CHAIRMAN. At any time?

Doctor WILEY. I do not know of any at any time. I want to add that, as far as I know, that includes the five or six people who are getting salaries from us for part of the time and are working for other people a part of the time. We have, however, a large number of persons on our roll, quite a large number, who are employed in the service of the agricultural colleges and experiment stations of the country.

The CHAIRMAN. At this point, just explain about that. You mean the State agricultural colleges and experiment stations?

Doctor WILEY. Yes, sir.

The CHAIRMAN. How many have you?

Doctor WILEY. I think there are five or six. I will give you the names. William Frear, special agent, at \$1,200 a year. He is a special agent and we pay him \$1,200. He is also employed in the agricultural college and experiment station of Pennsylvania.

The CHAIRMAN. What does he do as special agent?

Doctor WILEY. He has charge of all the work that is done in the collecting and tabulating of data of the investigations relating to the establishment of standards of purity for food products, as authorized by Congress. The Secretary of Agriculture is specially authorized by the act to collaborate or call to his collaboration the Association of Official Agricultural Chemists of this country. You will find it has been in the act for years. The official chemist, as Doctor Frear

(Witness: Wiley.)

is rated, collaborates with the Secretary of Agriculture, and the Secretary pays him for this collaboration \$1,200 a year.

The CHAIRMAN. Is he employed by the State Agricultural College of Pennsylvania?

Doctor WILEY. Yes, sir.

The CHAIRMAN. What compensation does he receive there?

Doctor WILEY. I could not tell that; I do not know. It is a reasonable compensation. How much, I do not know.

The CHAIRMAN. Approximately \$1,500 or \$2,000?

Doctor WILEY. I should think it would reach at least \$2,000, although I am not certain.

The CHAIRMAN. I assume that he is a competent man?

Doctor WILEY. Yes, sir; he is a very competent man.

The CHAIRMAN. The man is designated by the head of the agricultural college as a proper man for the Secretary to use in connection with the work?

Doctor WILEY. It is done with his knowledge and consent and approval.

The CHAIRMAN. What does he do?

Doctor WILEY. He is charged by direction of the Secretary of Agriculture with the general supervision of the work which the Association of Official Agricultural Chemists does for the Secretary looking to the establishment of standards of purity for food products.

The CHAIRMAN. At Pennsylvania?

Doctor WILEY. He does the work there. The work is general work all over the country.

The CHAIRMAN. This man has charge of that general work all over the country?

Doctor WILEY. Yes, sir; under the Secretary of Agriculture.

The CHAIRMAN. What does that involve, simply executive work?

Doctor WILEY. Executive work and an immense amount of correspondence. The collection of data and tabulation of data, being in constant touch with the other institutions of the country, the other colleges and other agricultural experiment stations.

The CHAIRMAN. Where does he do that work? At the college in Pennsylvania?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Does he have stenographers and typewriters?

Doctor WILEY. Yes, sir; but he pays them himself. That includes all the expenses of his office.

The CHAIRMAN. Have you other men of a similar character in connection with other agricultural colleges?

Doctor WILEY. Yes, sir; but they only serve at the time when this committee meets. The Secretary calls these people together about twice a year to advise him in regard to these matters. There are six other members of the committee besides Doctor Frear, and while they are meeting at the call of the Secretary he pays them \$10 a day and their traveling expenses.

The CHAIRMAN. That is while they are employed on the call of the Secretary?

Doctor WILEY. Yes, sir.

The CHAIRMAN. He pays them for the time occupied in traveling to and going from the meeting?

(Witness: Wiley, Zappone.)

Doctor WILEY. I am a member of the committee and get no compensation, and Doctor Frear is a member and gets nothing extra for his services, but the other six get \$10 a day.

The CHAIRMAN. Is that \$10 a day while in attendance or \$10 a day in going to and coming from the meeting?

Doctor WILEY. Also for the time going to and coming from the meeting.

The CHAIRMAN. That means \$10 a day for the time they have to take from their business?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Are there more men employed by the State agricultural colleges and experiment stations?

Doctor WILEY. Dr. E. H. Jenkins is the director of agriculture of Kentucky. He is one of the members. Dr. M. A. Scovell, director of the experiment station in Kentucky, is another member. Prof. H. A. Weber, of Columbus, Ohio, is a professor in the agricultural college of the University of Ohio at Columbus. He is a member. Dr. Richard Fischer is chief chemist of the State dairy and food department of Wisconsin. He is another member. Dr. H. A. Barnard is chief chemist of the food and dairy department of Indiana. He is another member of this committee. And Dr. Elton Fulmer is chemist of the agricultural experiment station of Oregon.

The CHAIRMAN. These gentlemen receive no compensation from the Government except when they are in convention under these circumstances for the purpose of discussing this general subject and comparing notes?

Doctor WILEY. No, sir.

The CHAIRMAN. That is hardly an employment by the Government; that is simply when their services are had by the Government for this purpose, they get pay for the service.

Doctor WILEY. Yes, sir; that is the condition.

Mr. ZAPPONE. It is practically contract work.

Doctor WILEY. Dr. William Frear, the first gentleman named, is the chairman of this committee, and he is commissioned by the Secretary to specially attend to this duty.

The CHAIRMAN. Does he correspond with any other men than these six?

Doctor WILEY. Yes, sir; he corresponds with hundreds, and he tabulates all this information and gets it ready for the meetings of the committee.

The CHAIRMAN. And whenever the committee gets together Doctor Frear is able to present in concrete shape the result of the work during the period since the last meeting?

Doctor WILEY. Yes, sir.

The CHAIRMAN. With the exception of those men have you any other men operating in connection with the agricultural stations in the various States?

Doctor WILEY. No, sir.

The CHAIRMAN. The Bureau of Animal Industry, if I remember correctly, has men operating in connection with the agricultural experiment stations to a certain extent?

Doctor WILEY. That may be. I do not know.

Mr. ZAPPONE. Yes, sir; in connection with animal feeding and breeding. Doctor Melvin explained that.

The CHAIRMAN. Is there any other Bureau of the Department of Agriculture that has representatives who are operating in connection with the various agricultural experiment stations of the States outside of the Bureau of Animal Industry?

Doctor WILEY. I do not know.

Mr. ZAPPONE. The Office of Experiment Stations is the principal one. We do not call it a bureau, but an office, and Doctor True, the Director of that Office, will be before you in a very few days. Some of the other bureaus also collaborate with the agricultural experiment stations.

Doctor WILEY. As far as I can recall from memory and from looking over this pamphlet, I think that includes everyone who is working for this Bureau, except those who work upon regular appointments and give their whole time.

The CHAIRMAN. And at least a half dozen scientific men to whom you have referred are not in any proper sense employees of the Department?

Doctor WILEY. They hold a commission from the Secretary and take an oath of office—all these people.

The CHAIRMAN. Their employment is by no means continuous?

Doctor WILEY. No, sir; it is only as I have indicated.

The CHAIRMAN. Occasionally?

Doctor WILEY. Only occasionally.

The CHAIRMAN. That simply means that the Secretary has certain defined men upon whom he has the right to call for this particular purpose?

Doctor WILEY. Yes, sir; and he does it under specific authority of the act mentioning the very people.

The CHAIRMAN. Can you give us in a general way what the items are that appear as reimbursement for station and field expenses under your Bureau?

Doctor WILEY. Yes, sir; I think I can tell you exactly. - Take my own case, \$92.70. I often in seeking information relating to the work of this Bureau, in carrying on investigations which Congress has authorized, have occasion to employ laborers or temporary assistants at points distant from Washington, where it would be extremely inconvenient to have a regular certification from the civil service and impossible to get a regular appointment. In those cases I carry an authority from the Secretary of Agriculture to spend a certain amount of money for supplies or for necessary labor and to take vouchers therefor and put it in as a personal account.

The CHAIRMAN. I suppose these are all expenditures which you can not very well anticipate any great length of time?

Doctor WILEY. It would be impossible to anticipate them.

The CHAIRMAN. And they may occur at the moment?

Doctor WILEY. This occurred in connection with the experiments authorized by Congress in conducting work at Waycross, Ga., on the manufacture of table sirup without the use of chemicals or preservatives. It was a matter which we could not foresee, and we had to issue an authority of that kind or else drop the work.

Another illustration: W. D. Bigelow, \$236.79. In our investiga-

(Witness: Wiley.)

tions it is necessary that we have a large number of samples, for instance, of foods or drugs, and the Secretary issues an authorization to Doctor Bigelow to buy samples of food not to exceed a certain maximum expenditure, and to take subvouchers from the person who supplies them. They often only amount to a few cents, and to require these to be put on a separate voucher, and all that trouble, would be almost impossible. He goes out under this authority and he purchases these small articles and he submits his personal account with these subvouchers. That accounts, I imagine, for all the expenditures of Doctor Bigelow. Every one of them is an expenditure of that kind.

L. M. Tolman, \$398.95. Mr. Tolman was commissioned last year, when we undertook the examination of distilled liquors to determine their purity, etc., to go to different saloons and buy a quart of whisky over the counter.

The CHAIRMAN. Your purpose was to get the material actually on sale?

Doctor WILEY. Yes, sir. If you went and told them that it was for the use of the Department of Agriculture, they probably would not give you what they were selling to the trade, but they would give you something superior. We want to get the real things that go to the trade.

Another illustration: We wanted to find out how much borax was put into codfish in making balls. We got the authority and I sent a man to order a breakfast of codfish balls, but instead of eating them he put them into his pocket and brought them home for analysis. We could not make out a regular requisition for that.

The CHAIRMAN. That is the only way to reach the articles on the market?

Doctor WILEY. Yes, sir. Every single one of the expenditures is of that kind, and every one is covered by a proper voucher. As to Mr. George Patrick, it is the same thing. Every one of those expenditures is of that description.

The CHAIRMAN. Now you come along to Miss Pennington—that is for testing materials of the same character?

Doctor WILEY. Yes, sir; for the purchase of samples for comparison and things of that kind. All chemicals except those in emergency we buy on regular requisition.

The CHAIRMAN. All the items of station and field expenses are substantially of this character?

Doctor WILEY. Exactly of that character.

The CHAIRMAN. Made necessary by this condition of which you speak?

Doctor WILEY. Yes, sir.

The CHAIRMAN. That you may prosecute a useful and valuable investigation?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Your traveling expenses are of the same character? I imagine you have to do a good deal of traveling?

Doctor WILEY. As a rule, I travel very little. For this fiscal year I had a large bill for traveling, \$862.19.

The CHAIRMAN. What is the occasion of the increase?

Doctor WILEY. Under authority of Congress, the Secretary is authorized to inspect the methods of supervising food products in foreign countries—that is, to study the methods which they use. He commissioned me to make the study, and in this fiscal year \$534.64 was spent in a three months' trip to various countries of Europe, to study the methods of making distilled spirits in Scotland and Ireland, that control the principal part of the exports of those articles to this country, and also the production in the Cognac region of France.

The CHAIRMAN. That is not in connection with the denaturalized proposition?

Doctor WILEY. No; but with the importation of food products from foreign countries, and the other part of my traveling expenses was exclusively spent in visiting points where our laboratories are established in Boston, Philadelphia, New York, New Orleans, and Chicago. Those are the only ones I visited during that fiscal year.

The CHAIRMAN. Do any of the members of your department travel on transportation?

Doctor WILEY. Nearly all of them.

The CHAIRMAN. I mean free transportation?

Doctor WILEY. You mean passes?

The CHAIRMAN. Yes, sir.

Doctor WILEY. None whatever.

The CHAIRMAN. Have they ever done so?

Doctor WILEY. I had a pass once for a trip to Georgia, but I was going with the Secretary and he would not let me use it. He had me buy a ticket. I have never traveled on a pass on official business in my life, nor has anyone in my Bureau in so far as I know.

The CHAIRMAN. You have never experienced that felicity?

Doctor WILEY. Not since I came to Washington. I thought at first that you meant transportation orders.

The CHAIRMAN. No, sir.

Doctor WILEY. That is the reason that I said that nearly all of us used them.

Mr. ZAPPONE. Returning to Miss Pennington; at the time of her appointment was there not an agreement between you as to the services which she was to perform each day and did you not predicate her compensation on that?

Doctor WILEY. It was agreed between us that she was not to work every day, but only as occasion might arise in this investigation, and that when she made her return each day represented in her return should be seven hours.

The CHAIRMAN. She was to put in at least seven hours on each day for which she rendered an account?

Doctor WILEY. Yes, sir. If she worked four hours to-day and three hours to-morrow, it was to be entered as one day's service. It was all fully agreed to.

Mr. ZAPPONE. It was a subject of correspondence?

Doctor WILEY. Yes, sir; and instruction.

Mr. ZAPPONE. And her duties were well defined and understood?

Doctor WILEY. Yes, sir.

The CHAIRMAN. The Government only pays for service actually rendered out of the lump sum at \$7.25 per diem?

(Witness: Wiley.)

Doctor WILEY. The Government only pays for actually rendered service. I want to say, in order that I may have full responsibility for this, that after Doctor Pennington passed this examination she was very loath to render us any continuous service and said she did not think that she could give all the time that I desired; but she was so peculiarly suited to this work, more than anybody else who had taken the examination, that I first asked her to give us her whole time, but she could not. Then I asked her to give us some service, because she was the person best suited to do the work, and finally, after my solicitation, she consented to this arrangement.

The CHAIRMAN. That condition was disclosed as the result of an examination by the Civil Service Commission?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Has the actual work and practical experience that have been done by the Doctor justified the result reached by the examination of the Civil Service Commission?

Doctor WILEY. Yes, sir; more than justified it. Her work is of a very superior character.

The CHAIRMAN. And to that extent the civil service was adapted to the result desired?

Doctor WILEY. It disclosed the very best party for the work to be performed.

The CHAIRMAN. How do you differentiate in your Department between your different classes of employees, whether on the basis of units of work done as the basis of compensation, or on the basis of the length of time in which they have been employed in the Department, and increases made for the purpose of encouraging the people to enter the Department; and what is the distinction between the duties rendered by the different classes of employees, beginning with the lowest salaries first and going up?

Doctor WILEY. I will begin with the clerks at the lowest salaries. All the clerks, of course, are appointed to the service from the Civil Service Commission. We ask for a clerk at a certain salary or grade. We have them as low as \$720. I think that is the lowest statutory position we have in the clerical service. We ask the Civil Service Commission to certify papers for the grade of \$720. We look over the papers. Of course we very seldom have any personal knowledge of the candidates. We examine those papers carefully to see which one of them, in our opinion, is the best suited to our work. We do not necessarily always take the highest number, because the one that has the lowest number might have qualifications exhibited in the papers which would fit that person better for our work than the highest one. If everything else is equal, we always take the highest one. Then, the next thing we do is to write to some of the persons vouching for this person an official letter and ask if they have anything further to say in regard to the matter. Then we write to the candidate himself or herself and ask in a general way if such a position is offered would it be accepted, in order to get some idea of the character of letter he or she may be able to write. We make all these inquiries before we make a tender of the position.

The CHAIRMAN. What kind of work does this \$720 clerk do?

Doctor WILEY. This kind of a clerk is usually a stenographer and typewriter. That is the kind we usually ask for. We haven't much

(Witness: Wiley.)

use for any others. We have a file clerk and a property clerk, and we have a special examination for those. But for ordinary stenographic work we ask for a stenographer and typewriter. We have asked in the last two weeks for a regular clerk simply to keep copies, files, and so forth, which an ordinary clerk could do without being a stenographer and typewriter; but we have had difficulty in getting one. We have a very small clerical force because our Bureau has been a small Bureau, but after this, of course, we will have a much larger force.

The CHAIRMAN. On account of the enactment of the pure-food law?

Doctor WILEY. Yes. I am speaking of the old bureau entirely. When it comes to the time when, under a statutory position, there is a chance for promotion by resignation, or whatever the cause may be, or by the creation of a new statutory office—which is often done by Congress—and the question of promotion arises, if all the clerks have done equally good work, so far as I can distinguish, I promote them in proportion to their length of service. Unless there is some particular reason why one should be passed over another, that is my universal rule. I try to get a good idea myself of the ability of every person in the Bureau. While it was a small Bureau I could do that, but I doubt if hereafter I shall be able to do it. At the present time I have knowledge of what each person has been doing, so in case of particular merit I shall be able to know it. In that case I would jump a grade if there was a case of merit which was worthy of that discrimination.

The CHAIRMAN. That is, jump a man in the grade over the others?

Doctor WILEY. Yes. I do that only where there is an exceptionally good cause for it, because it demoralizes the service if it is done indiscriminately.

The CHAIRMAN. Right there. What sort of work does your \$720 clerk do?

Doctor WILEY. The \$720 clerk does exactly, so far as stenography and typewriting and some other kinds of work is concerned, what the \$1,200 clerk does—the same kind of work. But they do not do as well, as a rule, because of inexperience, and they do not do as much.

The CHAIRMAN. How about the \$1,400 clerk? Is the work substantially the same from the \$720 grade up to \$1,200?

Doctor WILEY. No; I give to the upper grades a higher character of work. I will illustrate that: Under the old régime we averaged a hundred letters a day in answer to inquiries on all kinds of subjects. It is quite impossible for a chief of a bureau to sit down and dictate 100 letters a day and do anything else. Those letters are now sorted out by my chief clerk, and perhaps two-thirds of them are given directly to stenographers of experience, who have learned to write those letters, and who do compose and write them. That is a different grade of work, and as they go up into that grade they get the ability and efficiency.

The CHAIRMAN. That is to say, there are some stenographers and typewriters that will write a letter without dictation?

Doctor WILEY. Without dictation, and just as well.

The CHAIRMAN. Making the original composition?

Doctor WILEY. Yes; and just as well as the chief of the bureau will write it, and they are always high-grade and experienced clerks in every case—I believe without exception. And also in the case of clerks who have been raised from a low grade to a higher grade and given executive work to do, although they still do some stenography and typewriting. One case I remember with respect to that was of a \$1,400 clerk who has charge now of the filing and record of all the work done at all ports of entry where our inspections take place, a very high grade of executive clerical work. She does that in addition to the stenography and typewriting, which is done when there is an opportunity to do it in between; so that so far as stenography and typewriting are concerned, a \$1,400 clerk does the same kind of work as the \$720 clerk does; but I do not give to the \$720 clerk anything but stenography and typewriting, while I do give to the upper-grade clerk, as experience and merit and ability increase, additional work. That is the only difference, Mr. Chairman, between the grades.

Mr. SAMUEL. Does that apply in technical or scientific work?

Doctor WILEY. We never give any technical or scientific work to clerks.

The CHAIRMAN. Do you have clerks drawing over \$1,200?

Doctor WILEY. My chief clerk draws \$1,600. My editorial clerk, who does the highest grade of intellectual work, gets \$1,400. She ought to have a great deal more. There is another clerk, who has charge of the property, who receives \$1,600.

Mr. ZAPPONE. One thousand four hundred dollars, Doctor.

Doctor WILEY. Yes; Mr. Linton keeps all the accounts and does a very high grade of executive work and receives \$1,400. Miss Eckman is the clerk whom I have just spoken of, who keeps the files and has charge of all the work in connection with the ports, a very high grade of work.

The CHAIRMAN. That is on the basis of efficiency?

Doctor WILEY. She has also been in the Bureau a long time. I would never give executive work to a clerk of that kind who had not shown the ability to do it. So I do make a distinction, even in the clerical work, with experience and ability in that way, by assigning work which is not strictly clerical, but of an executive character and which can be easily delegated without danger or detriment to the service.

The CHAIRMAN. You have referred to the accounts and requisitions. What is the practice in connection with your bureau with reference to requisitions? Does your clerk make out the original statement upon which a requisition is based; this clerk of which you spoke?

Doctor WILEY. I am speaking of the chemical and other supplies of the bureau, because that is our chief expenditure for supplies.

The CHAIRMAN. I will tell you what I am after, so you will get the point. We found on examination of Doctor Galloway that there was a process something like this; that one clerk prepared a memorandum or request which was the basis of the requisition, and a letter on that went into the hands of another clerk, who simply redrew the same thing and put it into the shape of a requisition, the requisition including both of these acts and requiring the going over of the same thing.

Doctor WILEY. In regard to the regulation of supplies as to chemicals and so forth, I instruct my property clerk to see to it that they are never exhausted. Suppose, in regard to our sulphuric acid, we should find the supply running low; he will come to me with a requisition for so many carboys of sulphuric acid, and the supply will thus not run short.

The CHAIRMAN. Who makes that requisition?

Doctor WILEY. He makes the requisition.

The CHAIRMAN. So that you have only one man engaged in the work, and no duplication.

Doctor WILEY. Yes. Suppose there is something new wanted, some workers are making an investigation and they require the purchase of some new chemical; they always come to me first and secure my approval. I say, "Are you sure that you need it?" and make them explain every detail before I give my approval. Then I call in Mr. Linton, and if I approve the requisition, I say to him, "Make out this requisition," and that is the end of it. I sign it, and that is all we have to do with it.

The CHAIRMAN. Does the purchase of your supplies go to the central bureau, so that they are all purchased under one head, or do you purchase them yourself for your bureau?

Doctor WILEY. We purchase them ourselves—that is, they are all purchased on bids which are prepared. My impression is that we send them direct [turning to Mr. Zappone].

Mr. ZAPPONE. Yes; you make your own purchases and mail the requisitions direct to the dealers.

Doctor WILEY. But we always purchase from the advertised and accepted bids, excepting things which have not been foreseen and are not in the bids.

The CHAIRMAN. Such as public advertisements.

Doctor WILEY. And then if they are to cost over a certain sum competition must be secured. We always do that. It is all very simple and there is no duplication in it at all; it is direct.

The CHAIRMAN. You haven't a great many employees above \$1,400?

Doctor WILEY. Not under the statutory roll. I have a number of chemists above \$1,400.

Mr. SAMUEL. I notice that your chief clerk is paid \$1,600.

Doctor WILEY. Yes, sir.

Mr. SAMUEL. I also notice that the chief clerk, for instance, of the Bureau of Entomology gets \$1,800. Are you in a position to make comparisons as to why your clerk should get less than one which appears to me to be a smaller appointment?

Doctor WILEY. I think it is because my chief clerk is a woman.

The CHAIRMAN. Then I will put the question the other way, why do the other men get more money?

Mr. ZAPPONE. The Secretary has recommended in the estimate for next year an increase in the salary of the chief clerk of the Bureau of Chemistry, making it the same as the chief clerk of the bureau to which you made reference.

The CHAIRMAN. Of course it does not necessarily follow that the one drawing less should draw more, because it may be that the one drawing more ought to be lowered.

Doctor WILEY. I don't think there is a more efficient chief clerk in

(Witness: Wiley.)

the Department of Agriculture. She has been there nineteen years and knows its history from beginning to end. Her name is M. S. Reed.

The CHAIRMAN. What do you say, Doctor, about the proposition as to the rates of compensation for clerks from \$1,400 down, in your Department, as compared with compensation that the same persons receive doing substantially the same kind of work in the commercial world or in outside employment? Are the sums paid per unit of result larger in your Department than they would be outside, or are they smaller? What is your judgment?

Doctor WILEY. Mr. Chairman, I am not acquainted with commercial houses nor the salaries paid therein, so I don't think I can answer that question.

The CHAIRMAN. Doctor Galloway told us the other day that, in his judgment after careful examination of that subject, he thought the Government employees from \$1,400 and under were drawing from 20 per cent to 25 per cent more than the people rendering substantially the same service in the outside world.

Doctor WILEY. I don't feel qualified to express any opinion on that.

The CHAIRMAN. How about the men who are in excess? When you get above \$1,400 you reach the area of scientific employees, practically?

Doctor WILEY. Except in the one case of chief clerk.

The CHAIRMAN. That is, your own chief clerk?

Doctor WILEY. As to whether all above that are scientific employees, I can not answer positively in that respect. We think that our people are getting a good deal less than those who do similar work in the commercial world. I can illustrate that by saying that I am losing at the rate of eight or ten men a year to commercial houses; that is, of my scientific staff.

The CHAIRMAN. Isn't that due largely to the fact that those men that you thus lose, while they are competent men and specialized in their lines, yet they have been developed in the great majority of instances in the Department and have acquired their skill and capacity while Government employees, and that they have a reputation for specialized scientific work as the result of their work in the Department that they would not have had if in outside employment?

Doctor WILEY. I think that is true. I think that of the 40 or 50 men that have left my Bureau to enter commercial life every one entered the Bureau unknown.

The CHAIRMAN. Are not those men largely indebted to the skill developed and the reputation acquired while in the Government service—from the fact that they have in the Government service an opportunity to get employment at a higher rate?

Doctor WILEY. But you must not forget the fact that we are robbed of the services. We are the persons who lose, and they are the persons who gain. The Government employee and commerce gain and we lose. That is the condition of affairs to-day. The very moment that one of our men gets a reputation and skill that make him of more value to the service and to the Government somebody comes along and takes him away.

The CHAIRMAN. The fact that he has been in the Government employ gives him the advantage to get employment in that way?

Doctor WILEY. Yes. We are training skilled men for the commercial world.

The CHAIRMAN. So that commerce is getting the advantage of the work done by the Government in the training of these men?

Doctor WILEY. Mr. Chairman, my Bureau is a training school for other branches of the service as well. I have lost two men inside of six months to the Treasury Department because they paid them nearly a thousand dollars more than I could pay them.

The CHAIRMAN. What are they doing in the Treasury Department?

Doctor WILEY. One of them went to take charge, and he has charge now of the denatured-alcohol matter. One went to the Bureau of Engraving and Printing to have charge of the print.

The CHAIRMAN. Is that because the men in charge of those departments arbitrarily fixed the salaries at that size?

Mr. ZAPPONE. Yes, sir; their salaries were no doubt paid from lump funds.

The CHAIRMAN. What particular men were those?

Doctor WILEY. Mr. Tolman and Mr. Munson. Both went from me to the Treasury Department.

The CHAIRMAN. What were they drawing under you?

Doctor WILEY. One thousand eight hundred dollars.

The CHAIRMAN. What are they getting now?

Doctor WILEY. Two thousand five hundred dollars.

The CHAIRMAN. Why was it necessary for the Treasury Department to jump that salary up \$700 in order to get those men?

Doctor WILEY. Because they wanted the men; because the men had the training.

The CHAIRMAN. Seven hundred dollars is a good increase.

Doctor WILEY. Yes. They could not get men anywhere else to do their work. We had prepared those men to do that work by our training, and I said that I would not stand in their way.

The CHAIRMAN. Why should not they have taken them from your department without an increase of salary?

Doctor WILEY. They would not have gone; they preferred to stay with me at the same salary.

The CHAIRMAN. Have you power to transfer men?

Doctor WILEY. If the men want to go, but not against their will; from one Department to another.

The CHAIRMAN. Is not there power on the part of a Department to transfer men from one department to another according to the judgment and discretion of the heads thereof?

Doctor WILEY. It is done constantly by consent of all parties.

The CHAIRMAN. Is it based upon the consent of the employed?

Doctor WILEY. Always, so far as I know. I have never known of a case otherwise.

The CHAIRMAN. That may be the course; that undoubtedly is the practice. But I would like to inquire now whether it would not be wise, either by statute or regulation, on the part of the departments to have the power placed with heads of bureaus to consolidate or to transfer from one Department to another when the service would be improved.

Doctor WILEY. I could not express any opinion on that because I never thought of that question.

(Witnesses: Wiley, Zappone.)

Mr. ZAPPONE. That is a matter of civil-service law. There is a law or regulation covering it now; it depends solely upon the consent of the head of each department and the apportionment as to States.

The CHAIRMAN. Then it does not depend upon the consent of the employee?

Mr. ZAPPONE. Not at all. The man is consulted as a matter of courtesy, but his personal wish in the matter need not affect the case. While it usually influences the head of the Department, if he orders the man transferred to another Department, he must go or leave the service.

Doctor WILEY. I didn't know that that was the case.

Mr. SAMUEL. Are these men doing more work now for \$2,500 than they did for you?

Doctor WILEY. I don't think they could do any more; they were men who worked all the time.

Mr. SAMUEL. Is it work of a high order?

Doctor WILEY. No higher order; I don't think it is of so high an order, because we have men doing not only routine work, but they do research work, which is the highest grade of work. Over there where the men are it is routine work.

The CHAIRMAN. The fact about it is that the positions they now occupy do not call for as high an order of ability and versatility as those which they left?

Doctor WILEY. As high an order of ability, but not research work, such as mine was.

The CHAIRMAN. That is, a man might have executive ability without research ability; but a man who combined executive ability with research ability would be a man of higher quality than a man who had executive ability alone.

Doctor WILEY. In this connection I would like to inform you that nearly every head man that the Bureau of Internal Revenue has had in the last fifteen years in the scientific service has been taken from my Bureau; every one.

Mr. SAMUEL. Were those men satisfied while they were working for you at \$1,800?

Doctor WILEY. Of course, they wanted more money, and they got this opportunity.

Mr. SAMUEL. They were apparently satisfied.

Doctor WILEY. Of course, they were perfectly willing to be promoted.

The CHAIRMAN. It was entirely within the power of the head of the Internal Revenue Service of the Treasury Department, by the concurrence of your Department, to transfer these men at the same salary to that Department.

Mr. ZAPPONE. In this connection I may state that it is my understanding that the numerous transfers of clerks from one Department to another, simply for the purpose of promotion, caused Congress at its last session to pass a law requiring a clerk to work three years in one Department before he could be transferred to another, and after being transferred to the other Department the clerk must remain there for three years before a transfer to another Department can be secured.

The CHAIRMAN. I am very thankful to you, Mr. Zappone, for calling my attention to this law. That eliminates the "fly by night" proposition.

Mr. ZAPPONE. Yes, sir. Doctor Wiley has just explained how he lost some of his valuable men in that way.

The CHAIRMAN. Is it not true that in the case of these two men, whose salaries were increased from \$1,800 to \$2,500, that it was perfectly within the power of the Internal Revenue Department, by agreement with the head of the Agricultural Department, to transfer those men from the Agricultural Department into the Treasury Department without any increase of salary?

Mr. ZAPPONE. Entirely so.

The CHAIRMAN. That is what I thought.

Doctor WILEY. But they would not have gone of their own free will.

The CHAIRMAN. That might be; but it is not dependent upon their free will. The responsibility rests upon the heads of the various Departments to see that the Government is efficiently served at reasonable compensation. They might eliminate the consent of the men in the service.

Doctor WILEY. It is a perfectly laudable idea of every man to desire increased compensation. I am willing to have it myself.

Mr. SAMUEL. But in these cases the temptation came from the Government itself.

Doctor WILEY. Yes.

The CHAIRMAN. But the question is, What is the proper thing to do from a business standpoint?

Mr. ZAPPONE. Well, the Government is seeking the best men all the time for special work, experimental and scientific. If such men are known to be in other Departments, they are approached, either directly or through the chief of the bureau of the other Department. Employees as a rule are satisfied with the work on which they are engaged, but they are not working for pleasure, they are working for a livelihood, and when an offer is made with an advance in salary they usually welcome the proposition of transfer. Of course the chief of the bureau in which they have worked dislikes to stand in their way. It is purely a business proposition.

The CHAIRMAN. Where an employee is discovered by the head of a bureau that can render efficient service in his bureau, and he has the power to transfer him without an increased compensation, and there is no occasion for an increase other than simply the inducement to transfer, it is unquestionably a duty to transfer him at his present rate of salary, and it is the duty of the head of the bureau where he was, if he is going to protect the interests of the Government, to agree to that transfer. Every head of a bureau can legitimately do all he can to make his bureau effective, but I suppose you would agree with the Doctor that it was the duty of that head of the bureau not only to protect the Government service through his bureau, but through other bureaus, and if you had a man in your employ that could render the Government more valuable service and make greater returns at the same salary in another bureau you would look upon it as your duty to concur in a suggestion for him to be transferred, would you not?

(Witness: Wiley.)

Doctor WILEY. If I was convinced that it was for the good of the public service I certainly would.

Mr. SAMUEL. If you have a specially valuable man who is receiving \$2,000 and he receives an offer of \$2,500 from an outside concern, have you any authority to offer that man an additional \$500 in order to retain him?

Doctor WILEY. I don't think we have any authority to offer that man more money in order to retain him, because that would be a kind of a bribe.

Mr. SAMUEL. I mean to retain his service.

The CHAIRMAN. To increase his salary.

Doctor WILEY. We could not give anybody over \$3,000, however, because Congress limits salaries on lump sums to \$3,000. But I never have done anything of that kind; I do not believe in it.

Mr. SAMUEL. I only had reference to a specially valuable man whom you did not want to lose.

Doctor WILEY. Yes; we have authority, providing we do not go above the limit of \$3,000; undoubtedly.

The CHAIRMAN. Just give me right here the names of the two men transferred and the salaries received at the time they were transferred.

Doctor WILEY. Mr. L. M. Tolman. He was receiving \$1,800, and he now gets \$2,500. Mr. L. S. Munson, who was receiving \$1,800. I am not so absolutely certain about Mr. Munson's salary, but I think \$2,250, but I am about Mr. Tolman's.

The CHAIRMAN. About the rate?

Doctor WILEY. Yes. It may be only \$2,000. He went right across the street to the Bureau of Engraving and Printing, but he has just resigned from there and accepted a very much larger salary with a private firm in Cincinnati in the same line of work.

The CHAIRMAN. How did you happen to have anybody who would be expert in the work of the Bureau of Engraving and Printing?

Doctor WILEY. It was in the chemistry of paints. He was appointed by the Superintendent of the Bureau of Engraving and Printing to take charge of the paint shop. He has now gone to a large paint factory in Cincinnati at a very much increased salary.

The CHAIRMAN. Now, let us take up the case of Munson. How long had Mr. Munson been in the service?

Doctor WILEY. I should say that he entered the service about eight years ago.

The CHAIRMAN. At what grade?

Doctor WILEY. I think at \$800.

The CHAIRMAN. Was he a chemist at that time?

Doctor WILEY. Yes, sir; a graduate of the agricultural college at Lansing, Mich.

The CHAIRMAN. And he has worked up through during that period of eight years into this grade of \$1,800?

Doctor WILEY. Yes, sir.

The CHAIRMAN. And has acquired special efficiency.

Doctor WILEY. He was chief of what we call the contracts laboratory. We have a laboratory in the Bureau of Chemistry which examines the character of all goods under contract to see that they come up to contract; not only for us, but for any other Department

of the Government, under authority of Congress. Congress has said to all the Departments: Whenever you need chemical work done of any kind, you have a right to go to the Secretary of Agriculture, and he will do it. Under that authority we have examined contracts for all Departments of the Government, especially our own; and Mr. Munson was the chief of that laboratory. It was on the examination of inks and paints offered for use in the Treasury Department that they became acquainted with his valuable service, and Mr. Sullivan concluded that the best thing he could do was to put him in charge of his paint shop to see that everything was properly mixed and compounded according to scientific principles. That is the way it happened.

The CHAIRMAN. And then after he received this training and education in the Department in your Bureau, he developed this special expert facility which has given him the reputation that has led to his large salary outside?

Doctor WILEY. That is exactly the case, Mr. Chairman.

The CHAIRMAN. And the truth about it is that your Department is not in competition with the outside commercial world in the employment of men in a grade of \$1,500 to \$1,800, and upward, except in the sense that they take your men after you develop them?

Doctor WILEY. When an outside party finds a man of that kind, he makes his offer of salary so high that he could not possibly think of sacrificing it to go into the Government service; for instance, the chemist of the artificial mineral waters, Carl Schulz, of New York, receives \$5,000 a year. We could not think of getting him because he could not sacrifice his salary to come. We do not compete with them, but they do compete with us, which is an unfair competition.

MR. ZAPPONE. They make the salaries high enough to retain the men?

Doctor WILEY. Certainly they do.

The CHAIRMAN. You do not have any efficient system of promotion, do you?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Please describe it.

Doctor WILEY. I make out twice a year a statement of the efficiency of every person in my Bureau. I do it largely from personal observation, so far as I can personally observe them, as well as on the representations of the chiefs of my several laboratories in addition to my own observation. Every man is ranked for his department, his punctuality, the quantity of work which he turns out, and the character of that work.

The CHAIRMAN. Do you have a blank that you use for that purpose?

Doctor WILEY. I have a blank that I mark myself. I go around constantly through my Bureau—and the men do not know that I am doing it—and when I am walking about I am looking at the neatness of their desks; I know whether they are there at 9 o'clock or not—I am there myself much before that time—and I know when they go away and stay half an hour, too. I do not like to do this work, but it is necessary in order to keep the records which the Secretary re-

quires. I know the efficiency of every man in my Bureau, excepting in the lower grades.

The CHAIRMAN. Does the Secretary require you to keep this?

Doctor WILEY. Yes, sir; he does; and they are transmitted to him twice a year.

The CHAIRMAN. And the records are not open to the men from time to time?

Doctor WILEY. The men do not see them.

The CHAIRMAN. Why would it not be a good idea, Doctor, to have your men, at the end of a six months' period, know what their record is for efficiency, so that if a man was below the standard it would give him an opportunity to improve his work and render better service?

Doctor WILEY. One of the men who had not received a promotion for a long time, and who found men were going up over him, came into my office and said: "Why is it that I do not get promotion?" I said, "Because you do not deserve it." He said, "What do you mean?" I replied, "I have kept a record of your work right along for two or three years, ever since this order came in, and I know exactly what you are doing. I state that you do not deserve promotion." He asked the reason, and I pulled out the record that is in my drawer, which is the record that I send to the Secretary of Agriculture. I said to him, "You have not been promoted because you have not deserved it." At first he was angry, and then he acknowledged it, and said that it was just, adding: "But I will show you that you will not have to make any more representations of that kind." That is one instance.

The CHAIRMAN. Why wouldn't it have been a good idea in the case of that man to have given him, at the end of six months, notice of the condition of his work, thus enabling him to reach the proper result?

Doctor WILEY. Mr. Chairman, I did tell him; I told him myself. I told him he was not doing the work as neatly as he ought to, and that he had his desk in a bad condition. I also told him that he did not attend as regularly as he ought to do. But it did not seem to worry him until he found that the Secretary knew it; then it began to have effect.

The CHAIRMAN. Suppose it was understood by all of the employees of your office—I simply want to get your own practical view about this—that these records were kept regularly?

Doctor WILEY. I think they do know it now.

The CHAIRMAN. And that they were in the hands of the Secretary?

Doctor WILEY. I think they all know it now.

The CHAIRMAN. But they are not all served from time to time with the results.

Doctor WILEY. I am instructed to keep them confidentially.

The CHAIRMAN. Do you understand that all the bureaus in the Department have an order like this?

Doctor WILEY. I do not know, Mr. Chairman. I know that I have it.

The CHAIRMAN. It is the only one that we have found.

Mr. ZAPPONE. I can answer that question, Mr. Chairman. I think that at one of the early meetings of this committee, perhaps while you

(Witness: Zappone.)

were absent, this whole matter was discussed; that is, the general policy of the Department in regard to promotions.

It is true, as Doctor Wiley has just explained, that the Secretary has issued orders requiring each bureau and division in the Department of Agriculture to keep these confidential records, or efficiency ratings, as they are termed.

As exhibits in this connection are presented:

(1) The Civil Service Commission regulations governing promotions, etc., in the Department of Agriculture.

(2) A general order of the Secretary of Agriculture announcing a board of promotion review.

(3) A circular letter of the Secretary of Agriculture directing bureau and other chiefs to file semiannual efficiency reports promptly.

(4) A sample efficiency report.

[These exhibits follow:]

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., December 1, 1896.

The following regulations, having been duly promulgated by the honorable the United States Civil Service Commission and approved by the Secretary of Agriculture, will hereafter govern promotions, demotions, and continuance in office of employees in this Department, and they are accordingly published for the information of all concerned.

J. STERLING MORTON,
Secretary.

REGULATIONS GOVERNING PROMOTIONS, ETC., IN THE DEPARTMENT OF AGRICULTURE.

OFFICE OF U. S. CIVIL SERVICE COMMISSION,
Washington, D. C., December 1, 1896.

In pursuance of the requirements of section 7 of "An act to regulate and improve the civil service of the United States," approved January 16, 1883, and in conformity with Rule XI of the revision of the civil service rules promulgated by the President on the 6th day of May, 1896, the following regulations governing promotions in the departmental service of the Department of Agriculture have been formulated by the Civil Service Commission after consultation with the Secretary of Agriculture, and are hereby promulgated:

REGULATION I.

SECTION 1. All vacancies above those in the lowest class of any grade not filled by reinstatement, transfer, or reduction shall be filled by promotion: *Provided*, That if there is no person eligible for promotion, or if the vacant position requires the exercise of technical or professional knowledge, it may be filled through certification by the Civil Service Commission.

SEC. 2. Except as provided in section 1 of this regulation, a vacancy in any class shall be filled by the promotion of an eligible in the next lower class of the same bureau, division, or office. When such vacancy exists, the board of promotion review shall certify to the Secretary of Agriculture the names of the three eligibles in the bureau, division, or office having the highest records of efficiency, and from these names the Secretary of Agriculture shall make his selection: *Provided*, That if there shall be in the bureau less than three eligibles in the class next below that in which the vacancy exists, the board of promotion review shall certify as many in addition of the highest eligibles in the corresponding class of the other bureaus as may be necessary to make a full certification.

REGULATION II.

SECTION 1. No person shall be promoted to any grade from which he is barred by the age limitations prescribed by the civil service rules.

SEC. 2. No person whose record of efficiency is below 85 per cent of the possible maximum rating of his class or grade shall be eligible for promotion.

(Witness: Zappone.)

SEC. 3. No person occupying a position below the grade of clerk-copyist shall be promoted to that grade until he shall have been employed two years in the departmental service and shall have passed, with an average percentage of 70 or over, the examination prescribed by the Commission.

REGULATION III.

SECTION 1. The chief clerk of each bureau, under the direction of the head thereof, shall keep a record of the efficiency of all employees under his supervision, and a similar record of employees not assigned to any bureau shall be kept by the chief clerk of the Department.

SEC. 2. The record of efficiency shall be kept on such forms as may be prescribed by the Commission after consultation with the Secretary of Agriculture, and shall embrace the elements which are essential to a fair and accurate determination of the relative merits of employees.

SEC. 3. A record of those eligible for promotion shall be kept by the board of promotion review. The board shall have access to efficiency records, and may at any time call for a transcript of the same.

SEC. 4. The efficiency reports, made by the chiefs of the several bureaus, divisions, and offices of the Department of Agriculture, respecting the value of the personal services in the Department of each person serving under them, and filed with the appointment clerk for the chief clerk of the Department, shall be the basis of all promotions, demotions, and continuations on the roll of the Department.

SEC. 5. The following shall be the form of efficiency report to be used in the Department of Agriculture:

UNITED STATES DEPARTMENT OF AGRICULTURE,

OFFICE OF THE SECRETARY,

Washington, D. C. -----, 189 .

TO THE CHIEF OF THE -----

You are directed to report upon the following-named person, as the questions herein propounded may require, and to file the report with the appointment clerk for the chief clerk.

J. STERLING MORTON,

Secretary.

EFFICIENCY REPORT.

M----- is employed under your supervision. This person's salary is \$----- per annum.

Upon what character of work is this person generally employed? Is it clerical? Supervisory? Routine? Is it of a varied and exceptional character? Does it involve original thought, consideration, or investigation? If it is skilled labor, state the kind, and whether it is supervisory or routine. If it is that of messenger, watchman, charwoman, or mere laborer, state the fact.

How high on a scale of 10 do you rate the quality of this person's work? ----

How high on a scale of 10 do you rate the quantity of work per month done by this person? -----

How high on a scale of 10 do you rate the punctuality of this person? -----

How high on a scale of 10 do you rate the deportment of this person? -----

How many days absent from duty on account of sickness during the six months last past? -----

How many days absent from duty otherwise than on account of sickness during the six months last past? ----- On account of annual leave? -----

Without leave? ----- Furloughed? -----

Does this person show, in your opinion, any special fitness for work of a higher intellectual character than that to which assigned? .

Have you any further statement to make respecting this person? If so, make it here -----

(Signed) -----

No. ----- Chief of the -----

BUREAU OF CHEMISTRY.

(Witness: Zappone.)

(MEMORANDUM RESPECTING THIS PERSON, COMPILED FROM THE RECORDS OF THE DEPARTMENT.)

First appointed _____, 18 _____, at a salary of \$ _____ per annum _____

Classified civil-service record: _____

SEC. 6. An examination into the relative efficiency of employees, as shown by the efficiency record hereinbefore provided for, and such further tests as the Commission may deem necessary, shall constitute an examination for promotion from one class to another class. No person, except as herein provided, shall be eligible for promotion until he shall have passed such an examination.

SEC. 7. Examinations for promotion from one grade to another grade shall be conducted by the board of promotion examiners at such times as may be fixed by the Commission.

SEC. 8. Efficiency reports shall be called for by the chief clerk immediately before the termination of the first half of the fiscal year, and also immediately before the termination of the fiscal year, and may be called for at such other times as the interests of the Department seem to require.

JOHN R. PROCTER,
President Civil Service Commission.

Approved, December 1, 1896.

J. STERLING MORTON,
Secretary of Agriculture.

DEPARTMENT OF AGRICULTURE,
OFFICE OF SECRETARY,
Washington, D. C., May 12, 1902.

GENERAL ORDER NO. 51.

It is hereby ordered that the chief clerk of the Department of Agriculture, and the appointment clerk thereof, together with the chief of the bureau or division wherein a promotion or reduction from one class to another class is to be made, shall hereafter constitute the board of promotion review of the United States Department of Agriculture, according to the regulations governing promotions, etc., in the Department of Agriculture.

JAMES WILSON,
Secretary of Agriculture.

[Circular letter.]

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, May 31, 1902.

To all chiefs of bureaus, divisions, and offices of the Department of Agriculture:

Your attention is hereby called to the absolute necessity of promptly filing with the appointment clerk, before the termination of the first half of the fiscal year, and also before the termination of the second half of the fiscal year, the efficiency reports respecting the persons serving under you.

Regulation 3, section 4, of the regulations governing promotions, etc., in the Department of Agriculture, promulgated by the United States Civil Service Commission, is as follows:

"The efficiency reports, made by the chiefs of the several bureaus, divisions, and offices of the Department of Agriculture, respecting the value of the personal services in the Department of each person serving under them, and filed with the appointment clerk for the chief clerk of the Department, shall be the basis of all promotions, demotions, and continuations on the rolls of the Department."

Neglect or delay in filing these efficiency reports with the appointment clerk is a breach of the civil-service rules, and must not occur.

JAMES WILSON,
Secretary of Agriculture.

(Witness: Zappone.)

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., June 1, 1906.

The CHIEF OF THE BUREAU OF PLANT INDUSTRY :

You are directed to report upon the following-named person as the questions herein propounded may require, and file the report during the current month with J. B. Bennett, the appointment clerk.

S. R. BURCH,
Chief Clerk.

JAMES WILSON,
Secretary of Agriculture.

REGULATIONS GOVERNING PROMOTIONS, ETC., IN THE U. S. DEPARTMENT OF AGRICULTURE.

REGULATION II.

SEC. 2. No person whose record of efficiency is below 85 per cent of the possible maximum rating of his class or grade shall be eligible for promotion.

* * * * *

SEC. 8. Efficiency reports shall be called for by the chief clerk immediately before the termination of the first half of the fiscal year, and also immediately before the termination of the fiscal year, and may be called for at such other times as the interests of the Department seem to require.

EFFICIENCY REPORT.

M ----- is employed under your supervision. This person's salary is \$1,000 per annum.

The title of the position held by this person is clerk.

This person is stationed for duty at Washington, D. C.

Upon what character of work is this person generally employed? Is it clerical? Supervisory? Routine? Is it of a varied and exceptional character? Does it involve original thought, consideration, or investigations? If it is skilled labor, state the kind, and whether it is supervisory or routine. If it is that of a messenger, watchman, charwoman, or mere laborer, state the fact, and if that of a mere manual, unskilled, unclassified laborer or charwoman, state the duties performed. Is it scientific work? If it is, so state it.

Stenography and typewriting, general clerical work, including administrative routine.

How high on a scale of 100 do you rate the quality of this person's work? 97.

How high on a scale of 100 do you rate the quantity of work per month done by this person? 98.

How high on a scale of 100 do you rate the punctuality of this person? 99.

How high on a scale of 100 do you rate the deportment of this person? 100.

How many days absent from duty on account of sickness since December 1, 1905? 1 day.

How many days absent from duty since December 1, 1905, on account of annual leave? 5 days 4 hours. Without leave? 0 day. Furloughed? 0 day.

Does this person show, in your opinion, any special fitness for work of a higher intellectual character than that to which assigned? Shows ability to handle each new phase of work as presented.

Have you any further statement or recommendation to make respecting this person? If so, make it here. Highly deserving of promotion to next grade.

WM. A. TAYLOR,
*Chief Pomologist, in Charge of Field Investigations,
Bureau of Plant Industry.*

These efficiency reports are made up twice a year and are submitted to the Secretary for file in the office of the appointment clerk. Any employee of the Department of Agriculture can at any time go to the appointment clerk, ask to see his record, and find out his exact rating.

Now, to touch upon the subject of promotions, and how they are made in the various bureaus—that is, how they should be made

(Witness: Zappone.)

under the instructions of the Secretary. To illustrate, a vacancy occurs in a bureau. The chief of that bureau recommends an employee for promotion, basing his recommendation upon the efficiency ratings that he has previously sent to the Secretary. When this recommendation comes to the Secretary, he turns it over for action to the board of promotion review, created by his general order No. 51, exhibited to you a few moments ago, and regarding which I spoke at some length in the early part of these hearings. This board consists of the chief clerk of the Department, the appointment clerk, and the chief of the bureau or division in which the vacancy exists. The head of the bureau directly interested is therefore able to present to the board the merits of the particular man that he has recommended. They go over it carefully, and if they are not satisfied they say: "Well, perhaps you had better take this man that is next in line for various reasons," stating their objections. It is not unlikely that the chief may be willing to change his recommendation if it is presented in the proper light. After a decision, the board makes its recommendation to the Secretary, and the promotion made is based upon that recommendation.

You have had presented to you some additional features in the Weather Bureau which require examination for fitness for promotions; and in the Bureau of Plant Industry Doctor Galloway has explained what he does under the requirements of the Secretary—that he has a board of efficiency which passes upon the matter in his Bureau before it goes to the Secretary. But the Department board, the board created by the Secretary, is the court of last resort in the case.

The CHAIRMAN. Is the efficiency board described by Doctor Galloway peculiar to his Bureau?

Mr. ZAPPONE. Entirely so. I believe there is one other bureau of the Department, namely, the Bureau of Forestry, which has a similar board; you will hear of this when Mr. Pinchot comes before you. But there is a uniform system of efficiency ratings for determining promotions in the Department.

The bureau systems that have been previously explained are in addition to the departmental plan, and were inaugurated by the chiefs of those bureaus for the purpose of enabling them to make better recommendations to the Secretary regarding the fitness of the men; but in every case these recommendations are subject to review by the departmental board on promotion.

Mr. SAMUEL. Does influence from Senators or Congressmen have any effect?

Mr. ZAPPONE. Neither politics nor religion has any influence whatever in the Department of Agriculture.

The CHAIRMAN. I was probably absent when this examination took place.

Mr. ZAPPONE. I think likely you were.

The CHAIRMAN. I examined Doctor Melvin with very great detail on this precise point, and he did not give any information about your general plan. On the contrary, in substance he testified that promotions in his Bureau were substantially made on the basis that he had to increase the salary from time to time in order to induce the men to enter the service. If my recollection is right, we could read in

vain the testimony previously given, so far as getting any information of this general plan is concerned.

Doctor WILEY. This plan I have followed out most rigidly in my Bureau.

The CHAIRMAN. Which was perfectly proper for you to do.

Doctor WILEY. I examine every case with minute care to see the propriety of making any recommendation at all.

Mr. ZAPPONE. Will you kindly examine my previous testimony on this subject?

The CHAIRMAN. Your reference is to the statement that you made while the examination of Mr. Burch was in progress?

Mr. ZAPPONE. Yes; I think it was fully explained then.

The CHAIRMAN. And we probably went over that matter in a general way at that time.

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Then, as a matter of fact, Doctor, while you are not familiar with the detail, the men do have access to this general record?

Doctor WILEY. I was not aware that they had until Mr. Zappone told me.

The CHAIRMAN. The general record did differentiate somewhat, and to quite an extent, from the special efficiency plan that Doctor Galloway has introduced in his particular bureau.

Mr. ZAPPONE. Yes; he has a special plan, but that plan works along the lines of the departmental plan, and coordinates with it.

Doctor WILEY. I would like to make one additional statement in regard to the method of making promotions which may be useful here. As you know, in the bureau of which I have charge, I have developed a number of laboratories and divisions, each one having charge of some particular kind of work. Now, I am not satisfied with my personal inspection, so I require in every case a written statement from each head of the laboratories or divisions, giving the specific reasons which he urges for the promotion of any particular person. That is in addition to his efficiency record, which is kept as I have just indicated. And then I write another letter, which is always on file, and which goes over with the recommendation, stating why I ask for this promotion.

Mr. SAMUEL. Doctor, do you have a library clerk?

Doctor WILEY. Yes, sir.

Mr. SAMUEL. Is that clerk employed entirely in the library?

Doctor WILEY. Entirely in the library.

The CHAIRMAN. Is there duplication between your library and the general library that the Department of Agriculture keeps in a central place?

Doctor WILEY. Ours is a part of it; a section of books that pertain particularly to our work are placed in the laboratory, but they all belong to the general library.

The CHAIRMAN. So that there is no duplication?

Doctor WILEY. No two books of the same kind. There are a few works of reference that we keep in the main library. I don't think they are duplicated. They may be duplicated in the other chemical laboratories. There are three or four independent chemical laboratories on different lines of research in the Department.

The CHAIRMAN. That is because those lines are treated in one book?
Doctor WILEY. Yes, sir.

The CHAIRMAN. That, of course, would cause duplication where those particular lines were being investigated.

Doctor WILEY. In regard to periodical literature, it is passed around from one bureau to another and finally deposited in the bureau which is most interested in it.

The CHAIRMAN. How many volumes have you in your Bureau?

Doctor WILEY. I can not answer that, but I should say that we have at least 1,000.

The CHAIRMAN. Is your library clerk employed altogether in taking care of that particular branch of the library?

Doctor WILEY. Yes; and looking up references, especially for the use of the chief of the Bureau, who has to refer to these things constantly.

The CHAIRMAN. Does that occupy full time?

Doctor WILEY. Yes, sir; and very strenuously, too.

The CHAIRMAN. Engineer—for what purpose do you have an engineer?

Doctor WILEY. The engineer is in charge of our engines and machinery. We have a great deal of machinery in connection with our chemical work—grinding machines, shredding machines, presses, and whatever is mechanically necessary in our laboratory work. The engineer has charge of the engines and boilers, this machinery, and of the plumbing, which goes all over the house. Our plumbing is not chiefly for heating, but mostly chemical work. Each desk must have a supply of hot water and cold water and steam and gas.

The CHAIRMAN. That is in order to do experimental work?

Doctor WILEY. To have a working table useful for the men. Our Bureau is really a mechanical workshop as well as chemical, and the services of an engineer are absolutely necessary.

The CHAIRMAN. Is your Bureau housed in one building?

Doctor WILEY. No, sir; unfortunately.

The CHAIRMAN. Are there any other bureaus that are housed with yourself?

Doctor WILEY. No, sir.

The CHAIRMAN. That is, so far as your Bureau occupies buildings it occupies the whole of them?

Doctor WILEY. The whole of them; yes, sir.

Mr. ZAPPONE. They are rented quarters; they are removed from the main Department.

The CHAIRMAN. Would it result in pronounced economy if you could get them all together?

Doctor WILEY. It would.

The CHAIRMAN. That is contemplated in the building now being constructed for the Department of Agriculture, is it not?

Doctor WILEY. I believe it was, but the Department has grown so since those plans were made that it will not begin to take care of the scientific work of the Department as at present.

The CHAIRMAN. I mean the projected building.

Doctor WILEY. Oh, yes; the projected buildings will. I was referring to the ones in actual construction. We have, Mr. Chairman, a small building adjoining ours immediately to the south, that we

rent—two buildings—for \$12.50 apiece. We use them largely for storage houses and things of that kind. Then we have offices and laboratories in the different ports—in Boston, New York, and Philadelphia. Those buildings belong, generally, to the Government. We are in the Government buildings in Chicago and in New Orleans. In San Francisco our laboratory was burned. We had a rented building, as we could not get into the Government building, and we now have leased another building since the first of the year, and that is the only other leased building that we have outside of Washington.

The CHAIRMAN. How does your salary happen to be \$3,490.25?

Doctor WILEY. I took one day's leave of absence without pay last year.

The CHAIRMAN. And they docked you, or got you to dock yourself?

Doctor WILEY. I applied for it. I was wanted on a case involving the purity of food products, but not connected with the Department, to give expert testimony in New York, and I went to the Secretary and told him that I wanted to do that. I got \$100 for my fee, so took that leave of absence without pay during the day I was there. That is the way it happened.

The CHAIRMAN. Your salary is really \$3,500?

Doctor WILEY. Yes, sir.

Mr. ZAPPONE. Doctor Wiley came to me about it, and I suggested that he take a day's leave, without pay, to avoid any possible criticism in the future. It would have been perfectly legitimate under the law, but there was danger of criticism.

The CHAIRMAN. Then it was out of abundant caution?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Why is it necessary for your bureau to conduct its experimental work outside of Washington? In other words, why can not you do all your experimental and chemical analyzing work here in Washington under one head, without having to go outside with such a relatively large amount of expense?

Doctor WILEY. I can answer that in a few words. The chemical work in its relation to agriculture involves a good deal besides mere analysis. It means its application. You do not get the analyzing in any chemical work for agriculture until it is applied practically. From the beginning of our bureau, long before I came into it, and since then, this practical application of chemical investigation has been made, and it must be made at the places where the agriculture interested is; for instance, we conducted years ago a very extensive series of experiments in trying to develop sorghum sugar in this country; so we had to go to places where sorghum was grown for that purpose. We instituted the investigation also which led to the establishment of beet sugar in this country, and so we had to have laboratory facilities at places where beets were grown.

The CHAIRMAN. Why does not that come under the Bureau of Plant Industry?

Doctor WILEY. Because these principles underlying the industry are chemical in their character.

The CHAIRMAN. Is not that feasible for the Bureau of Plant Industry while they are investigating the other general features, as,

(Witness: Wiley.)

for instance, the production of sorghum and sugar beets? Doctor Galloway went very extensively over the question of sugar beets and the introduction and method of culture.

Doctor WILEY. The Bureau of Chemistry did all that work—every bit of it; no one else in the Department ever did anything toward it until it was fully established. Then, after it came to a simple question of growing them, they went on; but we did all the preliminary work.

The CHAIRMAN. So that there was no duplication?

Doctor WILEY. No.

The CHAIRMAN. Are we to understand that in order to get the necessary accurate scientific results, in your judgment, it is necessary to have the experiments made on the ground where the sorghum and the sugar beet are grown?

Doctor WILEY. Undoubtedly; we can not do it otherwise.

The CHAIRMAN. Would it deteriorate in quality if sent from there to Washington for analysis and examination?

Doctor WILEY. It would change somewhat, but that is not the important thing. The beet-sugar industry is purely a chemical science. It was developed by chemistry and is sustained by chemistry. In its inception the beet had only 5 per cent of sugar. Every effort to develop the sugar in the beet devolved upon chemistry. Botany helped, to be sure, but the chief work was done by the chemist, and always has been and always will be.

When I came into the Bureau twenty-four years ago the sorghum-sugar industry was under full investigation by my predecessor, but he had done nothing but technical work. My first impression was that if the sorghum industry was to be successful it must be done by the development of sugar in the cane. First, we must know how much is in the cane, and how you can devise methods to increase it, and how can you tell when it is increased.

The CHAIRMAN. Was the cane under cultivation?

Doctor WILEY. Under chemical control. Chemistry is the dominating principle. We undertook for eight years experiments in increasing the content of sugar. We made 125,000 analyses during those eight years, and we employed men to grow cane for us. The annual saving to the public resulting from the investigation of sorghum sirup is estimated at \$1,000,000.

The CHAIRMAN. Was that a microscopic investigation, microscopic and minute?

Doctor WILEY. It was accurate work, but not all with the microscope.

The CHAIRMAN. In your judgment that character of detail was necessary?

Doctor WILEY. Absolutely necessary.

The CHAIRMAN. How did you produce the ultimate results; in what way were these examinations useful and valuable?

Doctor WILEY. Two methods, one being the cross-fertilization method and the other the analytical method. Of course we could not know what we had done unless we examined the product, so we attempted both methods. We employed an expert. After that eight years of work we developed four different new varieties of sorghum, which are the dominating varieties, and with an increasing content of

(Witness: Wiley.)

sugar from 9 per cent to $12\frac{1}{2}$ per cent in eight years; and every step depended upon the chemical work that was done.

The CHAIRMAN. How was that utilized in connection with the development, was it in the selection of the fertilizer or in the soil?

Doctor WILEY. It was in the cross pollination of plants which we found to be rich in sugar, selecting from these fields the individuals with high content of sugar, and propagating those seed next year, so that we got a pedigree for our sorghum, just as you have for horses. Every variety had a pedigree of considerable length, and every one depended upon a chemical analysis to develop it. And the sugar beet has been made what it is to-day by the chemist. If you strike chemistry from the industry in sugar beets, in twenty-five years from now it would go back to its original condition.

The CHAIRMAN. That would be a matter of deterioration?

Doctor WILEY. Yes, sir.

The CHAIRMAN. In other words, do you have to keep this process of selection going on all the while?

Doctor WILEY. That is done chemically now. We do not have to do it any longer.

The CHAIRMAN. Have you so developed the science that that can be done successfully?

Doctor WILEY. It is done chemically. There is not a beet-sugar factory in the world that does not have its chemist to control the work to-day. I did all the work in the analysis of sugar beets that was done in the Department of Agriculture from the earliest times up to 1904, and we started the first sugar-beet station in Nebraska and developed the seeds there.

The CHAIRMAN. What was the sugar content of the beet when you began?

Doctor WILEY. When I began it was pretty near what it is now, because it had been developed in Europe, although it never had been developed in this country. My work was to find out over what areas you could grow the sugar beet; it was a climatic study dependent upon chemistry. I made thousands of analyses of sugar beets grown all over the country, and finally located the regions and published a map—that was twelve or fifteen years ago—indicating in this country where it was possible to grow the sugar beet. Every beet-sugar factory to-day in this country is in that belt, every one of them. They use it as a guide to-day for locating their fields. The annual saving resulting from the investigation of the sugar beet and the thousands of analyses made is estimated at \$1,000,000.

The CHAIRMAN. My impression was that the content of sugar in the sugar beet had been increased largely in this country in the last ten or fifteen years.

Doctor WILEY. There never has been any systematic work in connection with the sugar-beet content until within the last few years excepting in the Bureau of Chemistry. We have tried to protect the beet from the debasing influence of our climate. Our climate is not as favorable as Europe. Hot days destroy the sugar beet.

The CHAIRMAN. What is the most favorable climate?

Doctor WILEY. Where the average temperature for the three growing months—June, July, and August—does not rise above 70° Fahrenheit.

The CHAIRMAN. How is it in New England?

Doctor WILEY. New England would grow the best sugar beets in the world if you could get time for them to mature. The farther north you grow the sugar beet the better they are if you can mature them.

The CHAIRMAN. How long does it take?

Doctor WILEY. Four months.

The CHAIRMAN. From the time of planting?

Doctor WILEY. Between frosts.

The CHAIRMAN. Wherever you get the high latitude consistent with the time of development—

Doctor WILEY. Then you get the richer beets. Now, I will give you an illustration. Six years ago a company was formed down at Richmond to build a \$500,000 beet-sugar factory on the James River. They asked me to come down there and make a speech, and I told them I would do so, but I also said: "I will tell every man there not to invest a dollar in that factory." They said that that would be a peculiar speech to make, and I said: "That is the kind to make, because every dollar you put in a sugar-beet factory on the James River is lost money." I took the map, based upon the analyses I had made, and showed it to these men, indicating the territory where sugar beets could be raised; and after I had explained it to them they said that they were perfectly convinced, that they would not put a dollar into it. Every investor to-day that picks out a field for sugar beets goes back to the work done by this Bureau when it was a division and had but \$15,000 or \$20,000 a year income to support it. That shows you how necessary it is to follow chemical investigations, and that is the reason we set up those little stations outside. Down in Georgia they told me that they were making a table sirup that contained sulphur and chemicals. I said that if Congress would give me \$2,000 or \$3,000 I would show them how to keep the sulphur out. That was done; we went down there, and we made in three years 12,000 gallons of the best table sirup ever made, and from sugar cane grown in Georgia. The investigation of the methods of making pure sirup have greatly increased the industry in Georgia and other States. The estimated annual value is \$100,000.

The CHAIRMAN. Was it their idea that they did not have sufficient sugar content to produce it?

Doctor WILEY. They thought that they could not make the sirup without dosing it with sulphur, lime, phosphoric acid, and all those things.

Now, let me give you another illustration in connection with the denatured-alcohol bill. There was a great inquiry from all our farmers in regard to that. You have no idea how the agricultural population of this country was excited over that question. I said to the Secretary, "We must give information in regard to this subject, and we can not write all the letters. I want to write a farmers' bulletin that will tell them the truth about it as it relates to the farmer." When I got the bulletin written it was so big that it could not be published in one book, under the law, so they made two of it. One was in relation to the origin of denatured alcohol and the other the manufacture of it, and it made two very interesting and useful

(Witness: Wiley.)

bulletins for the farmer. The next thing was, How can the farmer utilize waste for making denatured alcohol?

The CHAIRMAN. What was the result of those two bulletins on that proposition?

Doctor WILEY. To point out to the farmers the material which it was probable could be made useful in making denatured alcohol. That was the first bulletin. The second was to point out its statistics and uses.

The CHAIRMAN. Did it indicate a commercially feasible proposition?

Doctor WILEY. It laid down the conditions upon which the farmer could judge. We could not judge ourselves excepting in an academic way, because we have studied each problem separately, and we wanted to find out what materials could probably be used and how low that price must be in order to compete with ordinary materials. A canner in Illinois got interested in the idea of utilizing the waste from sweet corn. I said to the Secretary, "Let us go out there and make alcohol right on the spot out of their materials." We sent out one or two men, and at an expense of two or three hundred dollars we showed this man that they were throwing away materials that would manufacture 150 barrels of denatured alcohol every week from one cannery. We made the alcohol right there under their eyes from this waste.

The CHAIRMAN. Is the manufacture of denatured alcohol under those circumstances an expensive process?

Doctor WILEY. That is another question. That is where we stopped out there. When it comes to the engineering—the building of a factory—we stop. The utilization of waste in making denatured alcohol, it is estimated, will save annually \$1,000,000.

The CHAIRMAN. You simply develop the chemical possibilities?

Doctor WILEY. We show what can be done, but we are not engineers, and we do not profess to know how economically it can be done. But what did those business men do as the result of the work we did last year? They have decided to put up a \$50,000 denatured-alcohol factory, and do it right away, and to have it in operation next year, and that as a result of our work. That is where we make chemistry help agriculture.

Now, let me give you another instance. Cider in this country is very poor stuff compared with that of Devonshire and Normandy, as we all know. We sent a man over there in 1900, who spent eighteen months studying the methods in those two places. We paid him \$100 a month and his expenses. He brought back 40 yeasts, all pure cultures. At that time he was connected with the agricultural station of Virginia at Blacksburg. They gave him a leave of absence to make this research for us. His principal duty now is to cultivate those yeasts, and get them into such form that they can be distributed through the Department to cider makers. Each of those yeasts will make cider of a different quality; but that is not the principal thing. The studies which were made by this Department abroad, and the methods employed in securing the proper yeast for making pure cider are worth \$100,000 annually to the manufacturer.

A Member of Congress—and I will not give his name—has a very large orchard and makes large quantities of cider. After the pure-

(Witness: Wiley.)

food bill was passed he came into my office and said: "I have just voted to destroy a good part of my business." I said: "What do you mean by that?" He said: "I make a great deal of cider, and I always have put it up with benzoate of soda. You have told us that benzoate of soda is injurious to health." I said: "Yes; and I think I could prove it to you." And I also told him that I entirely sympathized with him. He told me that he guessed he would give up his business, but I said to him: "I would not give it up without a trial. I think I can show you how to make your cider without benzoate of soda and make it better than ever." We spent maybe \$500, and I sent an expert to his place under instructions, who showed this gentleman not only how he could do it without the benzoate of soda, but he went to work and put up his whole crop without a drop of benzoate of soda. He told me when he came into my office that he had not had a barrel ferment, and that he never had had such good cider in his whole life. Now, we could not have done that unless we had had the knowledge and the apparatus and had showed him how to sterilize his cider and keep the germs out of it; and also to sterilize the barrels so as to keep the germs out of them, and even to boil the stopper of a bung in hot water before it is put in.

The CHAIRMAN. That was preventive rather than curative.

Doctor WILEY. Yes. You asked the question why it was that we go outside, and I am giving you illustrations.

The CHAIRMAN. Yes. How many other lines of investigations that are pursued in the Bureau of Plant Industry are based upon or necessarily acquired from your chemical investigations?

Doctor WILEY. The Plant Industry produces the crop. The Bureau of Chemistry takes the crop when it is ready for food, and everything relating to the use of a crop as food belongs to the Bureau of Chemistry under the law.

The CHAIRMAN. With regard to sorghum and beet sugar, you practically went back of that?

Doctor WILEY. It is necessary to use chemistry there, but now the great problem of fertilization is so well understood that it is not necessary to go out and make experiments in regard to that any longer. And all the States do that. We only go where the States can not do it, where they have not the facilities or perhaps the information to do it. And then we stop right there; we do not go any further.

The CHAIRMAN. What is your judgment as to the commercial utility of denatured alcohol?

Doctor WILEY. That is going to be one of the greatest blessings in time that has ever been conferred on this country, but it is not going to be anything so speedy as Mr. Hill, my very good friend from Connecticut, thinks. For instance, a gallon of alcohol to-day, fit for burning, after it has been denatured and of 94 per cent strength, can not be produced for less than 42 cents at the lowest price, while a gallon of gasoline can be bought at retail for 22 cents.

The CHAIRMAN. How is it going to compete?

Doctor WILEY. It can not compete now, but it can be used for many things that gasoline can not be used for in the manufacturing industries. You can not use gasoline for manufacturing smokeless powder.

(Witness: Wiley.)

The CHAIRMAN. Can it be used in the development of ordinary power?

Doctor WILEY. For the development of power in motor cars alcohol can not compete with gasoline to-day, but for burning in a lamp in a house gasoline can not compete with alcohol. It is too dangerous for that use.

The CHAIRMAN. How would it be for the running of small motors around on farms?

Doctor WILEY. For the running of small motors the farmer can not afford to take the risk of using gasoline now around his barn.

The CHAIRMAN. But the expense is greater for alcohol.

Doctor WILEY. Somewhat greater, but it is alcohol or nothing.

The CHAIRMAN. That lessens the element of danger?

Doctor WILEY. Yes, sir.

The CHAIRMAN. As a commercial proposition, taking into account the element of expense of the two materials, then, it is gasoline or nothing?

Doctor WILEY. As a mere matter of price; and the people who promoted the denatured alcohol, as most of us did, must face that fact openly and acknowledge it.

The CHAIRMAN. Certainly it ought to be stated.

Doctor WILEY. Our object is to develop a cheaper and more abundant source of alcohol than has ever before been known—that is, the Department must find out how much alcohol can be made from certain things, and then turn over to the Bureau of Plant Industry the problem of growing the material.

The CHAIRMAN. In the manufacture of the alcohol, at 42 cents a gallon, does that involve the using of raw material that is commercially valuable for other purposes or does it involve the utilization of waste that has heretofore been thrown away?

Doctor WILEY. No; I am speaking of alcohol made from Indian corn.

The CHAIRMAN. If you can utilize waste refuse from a corn-canning factory, then you would not have the expense for the raw material.

Doctor WILEY. No.

The CHAIRMAN. Can you state what it will cost to manufacture alcohol from that kind of material?

Doctor WILEY. Oh, yes; I am very well acquainted with that.

The CHAIRMAN. What would a gallon of alcohol cost in that case?

Doctor WILEY. A bushel of No. 3 grade corn costs about 40 cents—it may be a little more or less. That will make about $2\frac{1}{2}$ gallons of alcohol fit for denaturing, so that the raw material costs, in round numbers, 20 cents a gallon. When the alcohol is made it costs 42 cents a gallon, the 22 cents covering the whole cost of making and denaturing. So it is about half and half.

The CHAIRMAN. So that if you get raw material that costs nothing you will cut the cost to that of gasoline.

Doctor WILEY. That is what I want to bring out. If we find raw material that cuts the cost in two, we bring the price of alcohol to compete in price with gasoline. That is the work of our Bureau.

The CHAIRMAN. What about the amount of horsepower that can be developed by the use of alcohol as compared with gasoline?

(Witness: Wiley.)

Doctor WILEY. So far as heat is concerned, a pound of gasoline will develop almost twice as much heat as a pound of alcohol. A pound of gasoline, in round numbers, contains 11,000 calories of heat and a pound of alcohol contains 7,000. When it comes to using them in a motor in the form of vapor they are almost of equal value, because you can build an engine which will compress the alcohol vapor to twice the density of gasoline vapor without danger of explosion, and the more you compress the volume of mixed air and vapor at the moment of explosion the greater the power. Therefore, by the ability to compress the alcohol vapor to twice the density of gasoline vapor you can develop in horsepower as much energy from a pound of alcohol as from a pound of gasoline, although the heating power is not so great. So that it is going to be a great thing for driving motors just as soon as it is as cheap as gasoline.

The CHAIRMAN. Is it practically nonexplosive?

Doctor WILEY. Up to that point, but of course you can explode it if you compress it still more.

The CHAIRMAN. When it is used as an article of commerce, I mean.

Doctor WILEY. It is explosive, but as compared with gasoline it is really nonexplosive, because it is so much less. There is danger in using alcohol, very great danger, but gasoline is almost certain death unless a person knows something about its nature. But I think it is a thing that ought to be entirely inhibited from every farmhouse and barn because the people do not understand how to handle it.

Mr. SAMUEL. Is there any difference between the cost of alcohol proper and alcohol fit for denaturing?

Doctor WILEY. First you have to make alcohol before you denature it.

Mr. SAMUEL. The same alcohol?

Doctor WILEY. The same alcohol; yes. You do not need the pure spirits, but just ordinary alcohol of 94 per cent strength.

The CHAIRMAN. Is it an expensive process?

Doctor WILEY. Not very. I suppose the cost of the materials and the cost of adding them is about 5 cents a gallon. That is the maximum. That is the reason that I say that you can really get a gallon of alcohol for 39 cents without tax, and then you add 4 or 5 cents for denaturing and you get 42 or 43 cents, with reasonable profit to the dealer.

The CHAIRMAN. Is it practicable for the individual to distill the alcohol in small quantities for use in machines?

Doctor WILEY. That is one of the things that I treated at length in my farmers' bulletin. I show how utterly impossible it is for the farmer to put in a still, if he began, as he expected he was going to, to make alcohol.

The CHAIRMAN. That is simply a hope or an expectation that will in time be realized.

Doctor WILEY. But he has to get a license, and that will cost money, and just as big a license with a small still as with a big one. He has got to have Government supervision, and until the revenue laws are readjusted, until you have them the same as they have them in Germany—unless you have such a condition it is idle for the farmer, the ordinary farmer with, say, 160 acres, to think of running a still of

(Witness: Wiley.)

his own. What I do wish is that the farmers would combine, as in the sugar-beet factory, and have a still to which they all could have access, to which they could carry their materials and from which they could bring away their alcohol. That would be the upshot of it, the same as in the creamery business, only it is a good deal more difficult to make alcohol than it is butter on the farm. A small still will cost a great deal more in proportion to its size than a large still, very much more.

The CHAIRMAN. So that it will have to be a commercial proposition.

Doctor WILEY. For the further illustration of this point I want to say that some of our most valuable work in the next four or five years is going to be that of showing the people how they can use certain materials for making alcohol, and then leave it open to the engineer to build the factory.

The CHAIRMAN. Does your Bureau investigate fertilizers?

Doctor WILEY. No. We did that until the Bureau of Soils was established, when the Secretary transferred the work to that Bureau. We do not do that work now.

The CHAIRMAN. Is that a commercial proposition?

Doctor WILEY. Oh, yes.

The CHAIRMAN. Why is it not done by you?

Doctor WILEY. We did do it, and I think very well.

The CHAIRMAN. Why should not it be done by you now?

Doctor WILEY. We did do it to the satisfaction of all the people.

The CHAIRMAN. With less expense in your Bureau?

Doctor WILEY. I do not like to comment on that, Mr. Chairman.

The CHAIRMAN. It is a business proposition?

Doctor WILEY. I think as a business proposition it could be done at much less expense.

The CHAIRMAN. How long ago was the change made?

Doctor WILEY. About six years ago.

The CHAIRMAN. Is there any duplication of work?

Doctor WILEY. There is no duplication because we stopped doing all that work by order of the Secretary. The Secretary in establishing the Bureau of Soils transferred from the Bureau of Chemistry all chemical work relating to soils, and we have stopped that work. Up to that time we did a good deal of it.

The CHAIRMAN. Can you do that work in your Bureau without any general increase of personnel?

Doctor WILEY. We could do it without establishing an entire new laboratory, as has been done.

Mr. SAMUEL. Would that increase the cost?

Doctor WILEY. Every laboratory increases the cost, because you must have a head and an executive staff, which are an additional expense.

The CHAIRMAN. How much was the personnel increased by the creation of the Bureau of Soils?

Doctor WILEY. I don't know, because I am not familiar with that. The point that I want to bring out is that we do not do the work now, and therefore there is no duplication, although it was originally the work of our Bureau.

Mr. ZAPPONE. That was a matter of administration. The Secretary no doubt had good reasons for putting it under the Bureau of Soils.

The CHAIRMAN. That is a question, of course, that is open for us to inquire into.

Mr. ZAPPONE. Yes, sir; certainly.

Mr. SAMUEL. Do you know what prompted the change?

Doctor WILEY. I do not know that, excepting the general evolution of the Department.

The CHAIRMAN. Was the personnel of your department decreased any when the Bureau of Soils was created?

Doctor WILEY. At the time of the creating of the Bureau of Soils Congress had given us a special appropriation of \$3,000 for special investigations in soils, and for several years after the Division of Soils was created Congress continued that authority. We did, under that authority, up to 1901 continue the investigation of certain problems in soil chemistry. Up to that time, from the time when the Soil Division was first established, it had no chemical laboratory, and the chemical work that was done for the Division was done in our laboratory, so there was no duplication of the work. Doctor Cameron, who is now chief of that laboratory, was appointed as adviser in chemistry to the Chief of the Bureau of Soils and was assigned to our laboratory and did a year's work there. Then they decided to establish their own laboratory, so they took him away. That was the only diminution; he was the only one taken away.

The CHAIRMAN. That resulted in the decrease of one in the personnel of your force?

Doctor WILEY. Yes; he was probably doing all of that work. As our men were doing other work, they were not dismissed. What has been done over there was to appoint a large number of chemists to do soil work, which we are not doing in our Bureau.

The CHAIRMAN. Who had been doing it before that time, or up to that time; the men in your Bureau?

Doctor WILEY. Yes; I have no criticism to make of that, of course; I am only telling you the facts.

The CHAIRMAN. Yes; that relates to that Bureau that was created about six years ago; we understand that. I suppose there has been an increase rather than a decrease in the personnel of your force?

Doctor WILEY. A very large increase.

The CHAIRMAN. When was the increase made?

Doctor WILEY. It has been gradually increased up to now, and there will now be a sudden increase again. I can give you this information: Six years ago we were receiving an appropriation of about \$45,000 or \$50,000 a year, I can not recall the exact amount, but it can be ascertained. Last year the appropriation for our Bureau was, in round numbers, \$174,000. It has been increasing at that rate.

The CHAIRMAN. In 1906 the appropriation for general expenses of the Bureau of Chemistry was \$127,000.

Doctor WILEY. Yes; that is the year you are considering, the one that ended July 1. I am speaking of the present fiscal year.

Mr. ZAPPONE. One hundred and fifty-three thousand dollars is the

total for the Bureau of Chemistry. That includes \$24,000, in round numbers, for statutory salaries.

Doctor WILEY. That was the appropriation for the year ending July 1, 1906. That for the present year is larger than that, about \$19,000 more.

The CHAIRMAN. On page 234 of this publication of expenditures we get a total amount of \$155,000 and an expenditure of \$149,985.82.

Doctor WILEY. That is for the fiscal year ended June 30, 1906.

The CHAIRMAN. But this year there will be an increase.

Doctor WILEY. About \$19,000 more, I think.

The CHAIRMAN. So that you have grown from \$40,000—

Doctor WILEY. When we were made a bureau we commenced to grow, but not until then. That was six years ago.

The CHAIRMAN. How did it happen that you did not grow?

Doctor WILEY. As a division we did not, but we have been growing as a bureau. A bureau is a more dignified service, I suppose.

The CHAIRMAN. What is the difference in results to the Government?

Doctor WILEY. When we were made a bureau, Congress authorized the Secretary, and directed him, to do the chemical work for all the Departments of the Government which desired it. They came in at the same time under the new order.

The CHAIRMAN. That was contemporaneous with being created a bureau?

Doctor WILEY. Yes, sir; as a division we had a single organization with no subdivisions of any kind.

The CHAIRMAN. Who was then doing the chemical work of the other Departments of the Government?

Doctor WILEY. There was not much done. They had their own chemical laboratories and they have them yet.

The CHAIRMAN. You say that the other Departments have laboratories?

Doctor WILEY. Some of them do. Their laboratories are for specific purposes and not general purposes.

The CHAIRMAN. How is it that the Departments have continued their laboratories?

Doctor WILEY. The law provides only for such other work as the heads of Departments may ask for. It does not specify that they shall do all the work.

The CHAIRMAN. Why should not your Bureau of Chemistry do all the chemical work required by the other Departments of the Government?

Doctor WILEY. I think, if you will allow me to express an opinion on that, that it would be the greatest economy and efficiency in the world if that were ordered.

The CHAIRMAN. That is exactly what we want your opinion on.

Doctor WILEY. I think that would be the greatest economy in the chemical work that could come.

Adjourned at 1 o'clock p. m.

(Witness: Wiley.)

AFTER RECESS.

STATEMENT OF DR. HARVEY W. WILEY—Continued.

The CHAIRMAN. Will you be kind enough to state, Doctor, how many chemical laboratories are being operated now in connection with the other Departments of the Government?

Doctor WILEY. So far as my knowledge extends—and I think I am pretty familiar with the laboratories which are in operation—the Treasury Department has three laboratories in Washington. One is connected with the Supervising Architect's office, in connection with examining the materials used in the construction of public buildings. One is connected with the Bureau of Internal Revenue, and does the chemical work necessary to the execution of the laws relating to the collection of internal revenue on spirits, tobacco, fermented beverages, etc. The third is the office of the Assayer of the Mint; it is purely assaying chemistry, testing the fineness of the gold and silver, etc., connected with the mints of the United States.

The CHAIRMAN. Those are all three located in Washington?

Doctor WILEY. In Washington; yes, sir. The Treasury Department also has a chemical laboratory in practically every port of entry, since a great many of the materials which are imported into this country are chemicals or the duties are assessed in accordance with their chemical composition, and the object of these laboratories is to enable the appraiser to arrive at the exact revenue which should be collected on imported articles.

The CHAIRMAN. In accordance with the percentage of the various articles involved therein?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Do you also have men from your Bureau at various ports of entry?

Doctor WILEY. We have laboratories at the ports of entry as follows: Boston, New York, Philadelphia, New Orleans, Chicago, and San Francisco.

The CHAIRMAN. What is the reason that all the chemical laboratory work for the Government can not be done in your laboratories at those ports?

Doctor WILEY. I suppose it could be, if we had men enough there to do the work.

The CHAIRMAN. Is there any need of more than one laboratory, if it were operated by men enough to do all the work of a chemical character that the Government needs done at those ports?

Doctor WILEY. I should think that one laboratory large enough to do all the work would be entirely sufficient for the purpose.

The CHAIRMAN. And having two laboratories practically duplicates the expense of the keeping up of laboratories, does it not?

Doctor WILEY. There may be additional expense, but they do not duplicate each other's work at all.

The CHAIRMAN. No; they may not duplicate each other's work, but the laboratories themselves are to a large degree duplicates, are they not?

Doctor WILEY. To a large degree; but if you should increase the

(Witness: Wiley.)

one laboratory so as to do the work of the two it would be practically at the same expense.

The CHAIRMAN. Why could not the work done in the Supervising Architect's office, the Internal-Revenue Department, and the Assayer's Department under the Treasury all be done under your Bureau—the Bureau of Chemistry?

Doctor WILEY. I would like to answer that by saying that there is a very great deal of difference of opinion on that subject, and a very proper difference of opinion, respecting the proper way to do that kind of work, and I am only speaking from my point of view.

The CHAIRMAN. Precisely so.

Doctor WILEY. And I am not at all saying that it is better or worse than any other. As far as the chemical work is concerned, it is all chemical work and all belongs to the same science. The people who do this work are trained in that science along these particular lines, so that the man who is doing the assaying would not be a suitable person to turn over and do the work for the Bureau of Internal Revenue, nor to do the work of the Supervising Architect; but as far as the chemical work is concerned, it seems to me it might be done just as well under a common direction, under a single direction, in the Treasury Department, as to be done under three separate directions.

The CHAIRMAN. Would it not save expense?

Doctor WILEY. It would save the expense at least of one or two directors or head men. I do not think it would save any in numbers, because they all have all they can do.

The CHAIRMAN. But it would eliminate one or two directors of each bureau?

Doctor WILEY. It might; yes. It might eliminate one or two head men.

The CHAIRMAN. That is, the executive work they now do could be done by one general executive head?

Doctor WILEY. I think that would be possible; as far as the executive work is concerned, and, in my opinion, it would not make it any less effective.

The CHAIRMAN. And would not the centralization of the laboratory save expense also?

Doctor WILEY. There would be one system of buying and one source of supplies, so that the materials which might be in excess in one place would be available for the use of the other, and in that way save expense and promote economy, I think.

The CHAIRMAN. Is not quite a portion of the apparatus fundamental and common to all?

Doctor WILEY. Practically speaking, the chemical apparatus is the same in all.

The CHAIRMAN. Does not that involve, to quite an extent, duplication where you have separate laboratories?

Doctor WILEY. It involves duplication in so far as keeping stock on hand, not in use, is concerned; but of course the apparatus in use must be duplicated as many times as you have persons. Each man must have a certain amount of apparatus, and that is a duplicate of what the other man has. In that sense there is no duplication; but if each one has its separate stores, there may be a larger sum invested

(Witness: Wiley.)

in apparatus not in use than if they were all supplied from the same source.

The CHAIRMAN. What other Departments are there, besides the Treasury Department, that operate separate laboratories?

Doctor WILEY. The Department of Commerce and Labor has a laboratory in the Bureau of Standards that does chemical work in connection with the fixing of the standards of weights and measures, and other standard work under that act, as authorized by Congress. The Bureau of Standards also now does the work for the Treasury which was formerly done by the Department of Agriculture, in controlling the collection of duties on sugar at the ports of entry. This work was done by the Department of Agriculture for a number of years by an arrangement between the Secretary of the Treasury and the Secretary of Agriculture. I was in charge of the sugar laboratories of the various ports under the Secretary of the Treasury, detailed to his office for that purpose for as much time as was necessary, by the Secretary of Agriculture, and receiving an appointment by the Secretary of the Treasury.

The CHAIRMAN. When was that work transferred to the Bureau of Standards?

Doctor WILEY. Soon after it was established; about four or five years ago.

The CHAIRMAN. Did that result in any reduction in your force?

Doctor WILEY. Yes; one young man that I had, who assisted me in the polarizations, resigned and went into private business; but I was the only other person in my Bureau who had anything to do with it.

The CHAIRMAN. Were you able to do that in connection with your other duties?

Doctor WILEY. I did it by having sent to my laboratory every day a sample of sugars from every port, and this was sent to all the port laboratories and polarized at all the ports, and the results were sent to me for comparison every day; and this young man that I spoke of, that I had, made those analyses.

The CHAIRMAN. Did you have any man to take his place when he left?

Doctor WILEY. No; because when he left that work was stopped; and he resigned anyway, to go into private business, and we appointed nobody in his place.

The CHAIRMAN. That reduced one man in your Bureau?

Doctor WILEY. One man.

The CHAIRMAN. How many men did it require to do that work when it was in the Bureau of Standards?

Doctor WILEY. I could not answer that question.

The CHAIRMAN. You can not tell us anything about that?

Doctor WILEY. No.

The CHAIRMAN. What other Departments have laboratories?

Doctor WILEY. The Treasury Department also has another laboratory that I have not spoken of in the Marine-Hospital and Public Health Service.

The CHAIRMAN. Where is that, in Washington?

Doctor WILEY. Yes, sir.

The CHAIRMAN. That makes four in the Treasury?

(Witness: Wiley.)

Doctor WILEY. That makes four in the Treasury; yes, sir.

Mr. SAMUEL. You mentioned the fact that they had one in the Bureau of Engraving and Printing; too; did you not?

Doctor WILEY. No; they did start one there, but I do not think they kept it up after my man left.

The CHAIRMAN. What does the Marine-Hospital laboratory do?

Doctor WILEY. The greater part of the work of that laboratory consists of investigations of the chemistry of pathogenic changes in tissues, due to disease, and all chemical investigations looking to the chemical control of serums. The law requires that all serums made by any private individual in this country be subjected to a central control. That control was originally vested, I think, in the Bureau of Animal Industry of our Department. I think it is now vested, if I am not mistaken in my memory, in the Marine-Hospital and Public Health Service. I could not exactly give the functions of that laboratory, except in this general way, as I do not know what they are doing. I know that it is manned by most excellent men, and doing most excellent service.

The CHAIRMAN. It is doing purely chemical work?

Doctor WILEY. Part of it is purely chemical. It is what we call biological chemistry, relating to living processes of a chemical nature. It is very important work.

The CHAIRMAN. It involves bacteriology, too, I suppose?

Doctor WILEY. It involves bacteriology in its relations to chemistry; yes, sir.

The CHAIRMAN. You have given now the Treasury Department and the Department of Commerce and Labor. Is there any other Department that has a chemical laboratory?

Doctor WILEY. The Secretary of War has a laboratory in the Medical Department of the Army having general control over the remedies which are used in the Army.

The CHAIRMAN. They have one?

Doctor WILEY. They have one. I do not know whether they have more than one chemist or not. They never have had a very large laboratory. They also have chemists connected with the gun factories, to examine the steel and other materials which are used in the manufacture of arms. The Navy also has a chemist in connection with the smokeless powder which is made at Indian Head. They perhaps have three or four chemists down there.

The CHAIRMAN. Would it be practicable to unite those chemists under your Bureau?

Doctor WILEY. I would not say under my Bureau, Mr. Chairman.

The CHAIRMAN. Or under a general bureau of chemistry?

Doctor WILEY. I think it might be under a general governmental bureau.

The CHAIRMAN. A general governmental chemical bureau?

Doctor WILEY. Yes; I think that might be very advantageous in many ways.

The CHAIRMAN. In what way? Describe that, please.

Doctor WILEY. In the first place, I would not for a moment think of detaching those men from their present locations. The chemical work is necessarily done in the localities I have mentioned. The advantage would come from having, first, a superior morale in the

(Witness: Wiley.)

service; what you might call an esprit de corps. If you take a chemist and put him off by himself, he gets isolated and sometimes morose and melancholy, just like any other man. He does not seem to be in touch with his professional brethren. He is there by himself. He has no way of communicating directly with his professional brethren. He is detached from the general service. If he could feel himself a member of some fine organization, as an integral part of it, getting his inspiration and often his direction from this head source, I think it would improve his work and his position.

In the second place, if the chemical service of the Government were under a common control, it would undoubtedly prove more efficient in giving a better technique. The man at the head of the service would necessarily inform himself of the character of the work done, and thus be able to suggest improvements here and there which a man working by himself might not think of; and thus the actual character of the work would be improved by some central authority suggesting amendments where they were needed.

In the third place, there would be no danger of actually repeating work five or six times in different localities, which may be done under the present system without anybody knowing anything about it, because each man is perfectly independent, and people engaged in similar work in other parts of the Government service have no idea what he is doing.

For instance, excepting as I meet with my professional brethren engaged on Government work at the Cosmos Club or at the monthly meetings of our society or at the annual meetings of the national society, I do not know what they are doing. We do not consult together about what each of us is doing.

The CHAIRMAN. There may be parallel lines of investigation—identical lines of investigation—being pursued?

Doctor WILEY. Without knowing it, there may be many parallel lines of work, which nobody would think of carrying on if they knew that other people were doing the same kind of work.

Those are the three chief benefits that would come from a centralization, or from having some central directing and organizing power.

The CHAIRMAN. And then there would be the elimination of the executive directing heads?

Doctor WILEY. I would not, however, Mr. Chairman, even with my ideas of what the benefits would be, suggest that it would be advisable to try to bring together into one place all the chemical work of the country. That would be impossible. It must be done at the spot where it is wanted to be done. My contention is that it might be better done at these spots if there was this uniformity of action throughout.

The CHAIRMAN. Yes; but with reference to the laboratories existing here in Washington, there is no good reason why they should not all be consolidated in one central place.

Doctor WILEY. Another thing would come from that, Mr. Chairman. We could then have, as they have in other countries, an ideal laboratory constructed, because the Government would be willing to have it done.

The CHAIRMAN. I will go into that a little bit later.

Doctor WILEY. Yes.

(Witness: Wiley.)

The CHAIRMAN. Have you in mind any specific instances where identical or parallel lines of scientific investigation have been carried on in the various laboratories?

Doctor WILEY. There is one very important laboratory that I want to suggest before I go on with this subject, and that is the laboratory of the Geological Survey.

The CHAIRMAN. That we have not reached yet.

Doctor WILEY. No; we have not come to the Interior Department; that is so.

The CHAIRMAN. Perhaps I had better let you go through the various laboratories of the various Departments and then have you, if you can, cite some specific instance where there have been identical or parallel investigations going on at the same time in two or more laboratories.

Doctor WILEY. In the Interior Department they have a very finely appointed laboratory in the Geological Survey. I must say that in my opinion some of the most eminent chemists in the service of the Government are in the Geological Survey. They stand very high. I do not say that in any discriminating way, because I think all of these chemists are first-class men.

The CHAIRMAN. I understand. What is the work that that particular laboratory does?

Doctor WILEY. That laboratory is especially devoted to mineral chemistry, the analysis of rocks and minerals as connected with geological deposits and mineralogical deposits and mines and ores of all kinds—every description of material that the Geological Survey handles; and they are doing their work remarkably well.

Mr. SAMUEL. They do it entirely for the Government?

Doctor WILEY. All for the Government; yes.

Mr. SAMUEL. They do not do anything for private individuals or corporations?

Doctor WILEY. No; nothing at all; not to my knowledge.

The CHAIRMAN. Is there any other laboratory connected with the Interior Department?

Doctor WILEY. No; I do not believe there is, to my knowledge. There is no other one connected with it, so far as I know.

The CHAIRMAN. Are there any other Departments that have laboratories?

Doctor WILEY. The Post-Office Department has all of its chemical work done by our Bureau. I do not think they ever have any done anywhere else.

Mr. SAMUEL. Has the Navy Department a laboratory?

Doctor WILEY. The Navy Department has the same kind of chemists attached to its service that the War Department has. They have one pharmacist or chemist, who is a general director over their medicines, and it is, I think, the Navy Department instead of the War Department that has these chemists for the guns that I spoke of a while ago. I think it is these big gun factories for the ships of the Navy that have these chemists of whom I have spoken; but the War Department has all of its chemical work that is done in Washington, in so far as its examination of food stuffs is concerned, done in our Bureau. They send a great many samples to us.

(Witness: Wiley.)

I believe I have now mentioned all of the chemical laboratories in the service. I doubt if all of them put together have as many men employed as we have in our one laboratory. Their laboratories are small and are working entirely independently of each other, and they are doing, I must say, Mr. Chairman, most excellent work.

Mr. SAMUEL. They require special qualifications in their special lines, do they?

Doctor WILEY. Oh, yes. They are all trained chemists to begin with, and then they follow these lines until they get to be experts on these lines—experts of the highest character.

The CHAIRMAN. Do you have in mind any instance where there has been a duplication of work, or work going along in several laboratories at the same time on identical or parallel lines? If so, give it.

Doctor WILEY. I do not recall any instances where there has been any duplication of work except what was incidental. For instance, the examinations in the Treasury Department for the levying of duties require that there shall be certain compositions—I can best illustrate that, Mr. Chairman, by an example. I think that is very much better. It is concrete.

The CHAIRMAN. Yes.

Doctor WILEY. For instance, the tariff law provides that pineapples which are canned and imported in their own juice shall pay a certain rate of duty, but that if they have sugar added to them in their preparation, for their preservation or otherwise, they shall pay an entirely different rate of duty. That is a good illustration, because it shows where our Bureau comes in. The Treasury Department at New York made analyses of imported pineapples in cans and decided that they had had sugar added to them, and therefore should pay the higher rate of duty. The importers protested; and the importers agreed that they would refer the matter to the Secretary of Agriculture for decision. There, of course, there was a duplication of work, but it was incidental. The Treasury Department had to do that work to get at the duty. When it was referred to us we went into it as a research and did the same work that the Treasury had done. So we duplicated their work, but we did more. We sent to our consuls, through the State Department, at every place where pineapples were canned, and had pineapples put up under the supervision of our consul without any sugar and certified to by our consul, and we had them sent to us for examination. Then we took samples at the port as they came in without any certification—just the ordinary, merchantable samples. We brought those down here and examined both, and we found that the Treasury Department was exactly right; that their chemist had come to the conclusion which was inevitable from the examination of these two sets of samples.

There was a place where we, at the request of the Treasury Department, duplicated their work for the sake of settling a difficulty and not going into court, and all parties were perfectly satisfied with the work which we had done.

Mr. SAMUEL. Does your department analyze food stuffs for adulteration?

Doctor WILEY. Yes; we analyze them for adulteration. I was just coming to that.

(Witness: Wiley.)

When we examine a food product for adulteration we doubtless might do, and probably do do, some of the work that the Treasury Department does in examining it for duty; and in that case one examination, if it could be arranged, might be sufficient.

The CHAIRMAN. Yes.

Doctor WILEY. There are probably a good many examples of that kind—that is, where we trespass on the rights of the Treasury. They do not trespass on our rights, because we come in after them. They were already doing the work, but if they do our work at all it is only incidental.

The CHAIRMAN. If it was all done under one general bureau—

Doctor WILEY. That would all be saved.

The CHAIRMAN. The result of your investigation would be there to answer both purposes?

Doctor WILEY. It could answer both purposes, and that much would be saved. There would be an economy there.

The CHAIRMAN. Have you any knowledge to what extent that would prevail throughout the service in connection with these separate and independent laboratories?

Doctor WILEY. I could not tell unless I were more familiar with what the Government chemists do. I am only familiar with them as I have come into contact with them as an adviser or a referee. The Secretary of the Treasury very frequently, under the authority conferred upon him by Congress, refers such matters to us. Dozens of them have been referred to the Department of Agriculture for arbitration.

The CHAIRMAN. Is your Bureau generally used as a court of last resort on chemical propositions?

Doctor WILEY. In that way, where the law permits it; yes, sir.

Mr. SAMUEL. In your examinations for adulterations, etc., you carry out the examinations to a certain point for your own purposes?

Doctor WILEY. Yes; then we stop.

Mr. SAMUEL. If the examination was carried beyond that would it answer the purpose of another examination by some other Department?

Doctor WILEY. It certainly would.

Mr. SAMUEL. As it is now, they have to go over and duplicate part of your examination?

Doctor WILEY. I think it would be better to put that the other way: We go over and duplicate part of theirs, as they started before we did—that is where we trespass, you might say, on their ground to a certain extent; but it is only incidental. As a rule, the examinations which we make are not made by the Treasury officials. For instance, we look for a preservative in a food. They never do that. It does not matter to them whether it contains a preservative or not, so far as duty is concerned. Or we look for contamination from the can, from the zinc or the tin. They do not do that. But, for instance, we do look for glucose instead of sugar; so they would, too, because glucose and sugar have a different rate of duty. There is where we would cross.

Mr. SAMUEL. In making your examinations in the case of pine-apples, you would examine that can for adulterations, etc.?

Doctor WILEY. Yes.

(Witness: Wiley.)

MR. SAMUEL. And they would examine another can for sugar or glucose?

DOCTOR WILEY. To see if sugar or glucose had been added; yes, sir.

MR. SAMUEL. And yet you could examine to find out whether glucose or sugar were added, could you not?

DOCTOR WILEY. We could do it without any trouble when we were examining for the other purpose.

THE CHAIRMAN. At very little additional expense?

DOCTOR WILEY. At very little expense.

THE CHAIRMAN. So that an examination made for all purposes that would be utilized by the Government could be made by one chemist at very much less expense than a number of examinations of the same article by different chemists for different purposes?

DOCTOR WILEY. In so far as they cross in that way; yes. There would be cases where there would be a duplication; but I do not consider that a matter of so much importance as having a unity of purpose in the whole service, and having this principle of unity and the possibility of conference and advice.

MR. SAMUEL. The dissemination of information among one another.

THE CHAIRMAN. That increases the efficiency and the value of the service?

DOCTOR WILEY. It very much increases the efficiency and value of the service.

THE CHAIRMAN. That is, every man gets the benefit of every other man's investigation?

DOCTOR WILEY. Yes, sir. I would like to add to that, Mr. Chairman, that any idea looking to the separation of those laboratories from those various Departments I think would be an erroneous idea. They must be left where they are to do the work where they are; but they might do that work, as I will tell you after a while, if you want me to, as it is done in England.

THE CHAIRMAN. Do you mean that the laboratories that are under the Treasury Department here in Washington should be maintained in the same physical places where they now are?

DOCTOR WILEY. Well, they might be here in Washington. They might all be collected into one laboratory building.

THE CHAIRMAN. Precisely; but the other laboratories that are now distributed?

DOCTOR WILEY. They must necessarily stay there. It is a necessity.

THE CHAIRMAN. That suggestion would not apply to laboratories in Washington?

DOCTOR WILEY. Not at all. The laboratories here might very profitably all be put together in one grand building, where they could have every facility at the most economical rates.

THE CHAIRMAN. Would not that reduce the space occupied?

DOCTOR WILEY. It would not reduce it very much, because we fill up the space we occupy now as fully as it can be filled, I think. I do not think it would reduce the space. It would not reduce the personnel. It would reduce certain expenses in connection with supplies and supervision.

THE CHAIRMAN. You would not be able to state the percentage of reduction?

(Witness: Wiley.)

DOCTOR WILEY. No; I would not. I could not do that without going into the matter very much more carefully, because I am frank to say that I have never looked at it in the sense of saving money, but in the sense of efficiency and harmony. Those are the things I have had mostly in my mind.

THE CHAIRMAN. Your point of view would be directed toward increasing the value of the results?

DOCTOR WILEY. The value of the results; that is my sole object.

THE CHAIRMAN. There would be two points involved, as far as you were concerned: First, increasing the value of the results, and, second, the money expended for getting the results?

DOCTOR WILEY. I should think that if you could increase the efficiency of the results without increasing the expense it would be highly desirable. If you could increase the efficiency of the results and at the same time reduce the expense it would be more than desirable. But if you should have to spend more money to get better results, if you could get them that way, it would be advisable to do that.

THE CHAIRMAN. If you have covered this ground sufficiently, so far as the coordination of these laboratories is concerned, unless you have something further to say on that point, I wish you would give us a statement as to how the chemical bureaus are conducted in the best-managed systems abroad.

DOCTOR WILEY. I have given a good deal of attention to that matter, Mr. Chairman, for a number of years, but especially to the English system, because the English have the best system of all.

All the chemical work of the English Government is directed from one laboratory. It is called the Government laboratory—a very appropriate name for it. It is built right near the law courts in London, right off from the Strand. It is a large building, built especially for laboratory purposes, and represents the best thought of architecture and science combined at the time of its construction, which was about six years ago. The Government laboratory was formerly in Somerset House, and they are still referred to as the Somerset House chemists, although the force has been transferred to this Government laboratory.

The Government laboratory has charge and direction of all chemical work connected with the English Government, in the excise, the internal revenue, the collection of duties, in the work of the board of agriculture, and in all other things where chemistry touches governmental affairs. It has this central laboratory in London, and it is presided over by a very eminent chemist, Dr. T. E. Thorp, and an able corps of assistants. In the central Government laboratory are done all things necessary to devise and prepare the best methods of examination in a laboratory—the most certain and expeditious methods. It is more of a research laboratory in that respect than anything else. But then men go from this laboratory, or men who are attached to it, to the parts of England and Scotland and Ireland where their work is needed, wherever they may go. They have them at the ports of entry, just as we have. England, you know, now lays a duty on imported sugar, and they have the same kind of sugar laboratories at their ports that we have; and so with other things. Their principal work is, however, in the excise, in the collection of duties on

(Witness: Wiley.)

tobacco and beer and spirits. There are more Government chemists employed in England in that than in any other line. All the methods of work are devised and tried in this central laboratory. All the sub-laboratories are under the immediate direction of Doctor Thorp; so that he has his finger, you might say, on the whole machinery of the chemical service of Great Britain.

The CHAIRMAN. Do they have sublaboratories in London?

Doctor WILEY. Yes, sir; they do, in the customs service, where they examine those things directly from the ships, in order to expedite matters and not detain the imports any longer than is necessary. They have sublaboratories in all the principal cities and ports.

The CHAIRMAN. But with the exception of the customs service, there are no sublaboratories in London?

Doctor WILEY. There are no others in London except in the customs service.

The CHAIRMAN. They are all combined under one head.

Doctor WILEY. But in the interior cities and in the other ports they have laboratories for the excise, and for the control of those things, and the collection of duties. Of course, practically all the work is done for some governmental purpose; but the English Government has established this central laboratory where the research can be accomplished, for the purpose of doing this work in the best way; and therefore they have put all the chemical work under a common supervision, it makes no difference what department of the Government it is done for. I think the English service in many respects is superior to ours. They are no better; they are no better chemists, and no more enthusiastic, but there is more unity.

The CHAIRMAN. You say it is superior. Does it produce larger results per man?

Doctor WILEY. It produces larger results per man and more uniform results.

The CHAIRMAN. That is, they get more units of work with the expenditure of a certain amount of energy?

Doctor WILEY. Yes, sir; they do, undoubtedly.

The CHAIRMAN. And that, in your judgment, is the result of the centralization of the work?

Doctor WILEY. I think it is, undoubtedly. It is the result, of course, too, of having a very competent man at the head of the system. That you understand, I assume; it has to be done.

The CHAIRMAN. Oh, yes. Could you express that in percentages?

Doctor WILEY. No; I do not believe I could bring it down to percentages; but I can see the benefit of it by my study of that matter and by my experience in my own Bureau.

The CHAIRMAN. That is to say, your familiarity with that subject is such that, having observed your own Bureau, and knowing what your own Bureau is able to do, and the results it has succeeded in turning out, when you go there and examine that system and see what they are able to accomplish, you find that they get more units of results from the expenditure of the same energy there than you do here?

Doctor WILEY. Yes.

The CHAIRMAN. Although our men are equally skillful and equally efficient.

(Witness: Wiley.)

Doctor WILEY. And you avoid inequalities, Mr. Chairman.

The CHAIRMAN. That is, you get uniformity of results.

Doctor WILEY. It so happens—I am not criticising the Treasury but it is well known, and it so happens that a rule that is enforced in one port is often different in another, because the port laboratories of the Treasury have no connection with each other at all. They are all independent, and a chemist in one port may have one way of examining and a chemist at another port may examine in an entirely different way, and they may classify the same thing under two different heads. That has happened more than once.

The CHAIRMAN. That is to say, there is no scientific standard?

Doctor WILEY. There is no general direction. That has been largely remedied at the present time; but when I first worked for the Treasury Department I know by experience that the polarizations of sugars at one port, for instance, would be uniformly higher or uniformly lower than at another. The importers were not slow to find that out; and when they would find a port that was polarizing low they would send all of their importations that they could through that port, and they would change around, as the case might be. That has all been remedied since this investigation took place that I spoke of, but that was only an example of what was happening from the lack of a uniform direction.

I think I can plead for a uniform direction of this work without making any imputation upon any employee of the Government service, which I do not. I know nearly all of them, and they are honest, straightforward, capable men. But, just like other men working independently, there are marked differences of lines of research and of results obtained which lead to inequalities and lead to a lack of efficiency which might be remedied, not by moving the laboratories or by changing them in any way, but by putting them under a general direction.

The CHAIRMAN. Your idea is that these men accomplish all that is practicable under existing conditions?

Doctor WILEY. I think they do. I think they deserve great credit and praise.

The CHAIRMAN. And the only way to improve the conditions is to coordinate the service, and get this uniformity of action and direction and control?

Doctor WILEY. I think that is a very good expression of my idea, just as you put it, in your words. I would not go so far, Mr. Chairman, as to advocate a radical step at once. I might urge that it might be made uniform, you know, in each Department first, and then gradually unify the Departments together, so as to make them all into a harmonious whole.

There is another point that I want to speak of, because I am getting to be an old man now in the profession—one of the “fathers in Israel”—and these young men are coming on. I know them nearly all, the old men and the young men, too; and there are a great many of them in this country. You will be surprised to know how many there are in the chemical profession in this country. There are fully 10,000 professional chemists in the United States that make their living by the pursuit of chemical science. We have 3,300 men belonging to our national society, the largest in the world except in

(Witness: Wiley.)

Germany. So that you may know that we are a body of men of considerable numbers; and the thing that we lack in this country is unity.

Take my own experience in agricultural chemistry: Twenty-four years ago, to be sure, there were not many agricultural chemists in this country; but there were a number of them. Every single man was working on his own line. He had his own methods of work. He did as well as he could with those methods; but he had not the least notion how his brother was making the same examination. If he examined a fertilizer, for example, by his method, and another chemist, equally as skillful, examined the same fertilizer by his method, they might reach very different results, and yet both be perfectly honest.

About that time we organized what we called the Association of Official Agricultural Chemists. That association was organized in Philadelphia, in the autumn of 1884, by about eight or ten men, for the purpose of bringing about unity of action among the agricultural chemists of this country. We now have in that organization every chemist in this country connected with any official work of any kind in agriculture. They meet once a year. They have their committees. They study methods of investigation. They send out samples among each other for comparative analysis. They meet together and discuss the results, and then they adopt uniform standards of methods of analysis; and those standards are to-day recognized in every court in this country as being superior to any others that are in use. If two chemists come into court, as they have done repeatedly, and one testifies that he has examined his sample according to the method of the Official Agricultural Chemists, and the other says: "I have examined it according to my own method," and they get different results, in every case the court says: "Well, we will take the concensus method of the people who ought to know most about it, and who say that is the right method." Every civilized country has followed in our steps—we were the first—and have organized just that kind of bodies among the agricultural chemists.

That shows you what unity of action will do, and how much efficiency will be secured. I do not argue for any unity of action in this way which will segregate the work from the different Departments and make it less efficient for those Departments. My only desire is that they shall follow a common purpose, and work in a common way and under a common direction for the purpose of securing greater efficiency for the energy expended.

The CHAIRMAN. Did you find a condition in Germany similar to that in Great Britain? Germany is supposed to be a very highly educated country, especially scientifically.

Doctor WILEY. Among the agricultural chemists the condition is as good as it is in this country or among the Government chemists in Great Britain. They have the same organization now that I have spoken of, and they work altogether in harmony. Among the health chemists—that is, food chemists—in which I am chiefly interested, they have the imperial board of health, which is the guide for the whole Empire. That is at Charlottenburg, a suburb of Berlin; and it has a better-fitted and much more expensive laboratory than the Government laboratory of England. But it only controls those

(Witness: Wiley.)

things which relate to the public health, like foods and medicines. In that respect they are equally efficient with England. I do not know just how far the other chemical service of the German Government goes, nor how it is provided. I only know that which relates to the public health, and that is uniform throughout.

The same is true of France. The municipal laboratory of Paris practically is the food laboratory for the French Republic, and what it does is the guide for the other laboratories in other parts of the country, although it does not have any direct influence over them.

In Italy all of the Government work relating to the customs is under one central laboratory in Rome, and everything that is done for the customs in the collection of excise or imports is done under the direction of that laboratory. So you see it is more or less the principle adopted in the principal countries of Europe.

The CHAIRMAN. Here in Washington, I suppose, the laboratories connected with the War and Navy Departments, or the chemists connected with them, would hardly be said to be operating laboratories, as one man does all the work?

Doctor WILEY. They are very small.

The CHAIRMAN. They are very small; and that would be a negligible factor?

Doctor WILEY. It would be; yes, sir.

The CHAIRMAN. The Departments which have laboratories which should be reckoned with in connection with this matter of coordination principally are the Treasury, with the Supervising Architect's Office, the Internal-Revenue Bureau, the Assayer of the Mint, and the Marine-Hospital Service; and then the Department of Commerce and Labor, with the Bureau of Standards, and the Interior Department, with the Geological Survey?

Doctor WILEY. Yes, sir; those are the big laboratories. Those are far more extensively manned than the others I have mentioned.

The CHAIRMAN. In the case of the War and Navy Departments, that simply means the employment of one chemist for a particular purpose for them?

Doctor WILEY. Yes, sir.

The CHAIRMAN. Have these laboratories been conducted for years under the Treasury Department?

Doctor WILEY. Yes, sir; they are old-established laboratories; very old.

The CHAIRMAN. They never were connected with the Bureau of Chemistry, over which you have had charge for the last two or three years?

Doctor WILEY. They never have been; no, sir.

The CHAIRMAN. And is that true of the Geological Survey?

Doctor WILEY. Yes, sir; that is true.

The CHAIRMAN. So that the Bureau of Standards was the only one that was taken from your Bureau?

Doctor WILEY. That was not taken from my Bureau. That was established by special act of Congress; but they took a part of the work that we were doing.

The CHAIRMAN. Oh, yes; they took a part of the work you were doing and put it into the Bureau of Standards?

Doctor WILEY. Yes, sir.

(Witness: Wiley.)

The CHAIRMAN. What work do they do in addition to the work you were doing?

Doctor WILEY. I do not know that they have done anything in addition. I am not very well posted on what they are doing.

The CHAIRMAN. So far as you know, they took the same work that you were doing?

Doctor WILEY. Exactly, so far as I know; on the control of the polarizations of sugar.

The CHAIRMAN. And put it into the Bureau of Standards?

Doctor WILEY. So far as I know. I do not think they did any more than that.

The CHAIRMAN. You, and practically one man additional, were doing that work?

Doctor WILEY. One man, at \$50 a month, and myself were doing that work.

The CHAIRMAN. Do you think of any other suggestions in relation to that general question, Doctor?

Doctor WILEY. I think I have expressed all I can say on that point.

The CHAIRMAN. Is the work that is being done by your Bureau of such a character as to keep regularly and continuously employed your personnel in Washington and elsewhere?

Doctor WILEY. Yes, sir; it is. I do not believe, Mr. Chairman, that you will find any more industrious people in the Government service than you will find in ours. I suppose everybody says that, but I have reason to know that that is a fact, because I am there myself, early and late.

The CHAIRMAN. That is, you have no employee, clerks, or agents that could practically be dispensed with and still do the work that devolves upon your Bureau?

Doctor WILEY. We would have to diminish the work to that extent if we dispensed with any one person, I do believe. We have no drones. I do not mean to say at all that the wheels of the world would stop if that work was abolished.

The CHAIRMAN. Oh, no; I understand that.

Doctor WILEY. I do not want to put it in that way, but I think it is useful work.

The CHAIRMAN. And whether it is or not, it devolved upon you by Congress?

Doctor WILEY. By act of Congress, yes; and I am trying to do it as Congress points out.

The CHAIRMAN. Will you be kind enough to give us now, Doctor, some typical instances of the work that is done by your Bureau, with special reference to its commercial and material utility and value to the public at large?

Doctor WILEY. I will do that as briefly as I can, Mr. Chairman.

I am one of those that believe in the application of science to the arts and industries. I believe also in science for science's sake—that is, pure research. I think that the chemist in the service of the Government should not only find out hidden things, but should make them useful to the arts and industries of the particular branch of investigation in which he is engaged—in my case, agriculture. And therefore, while I try to keep up research, because that is the very

(Witness: Wiley.)

life of science, advance in knowledge, I try to utilize the fruits of that research for the benefit of agriculture; and I want to tell you how I endeavor to carry out the will of Congress in the interests of agriculture.

First, let me speak of a very important feature of our work that is provided for by law, and that is the collaboration of my Bureau with the other bureaus of the Department. That is provided for by special act of Congress—that there are certain of the bureaus that shall have their work done in the Bureau of Chemistry, while others Congress provides shall do their own chemical work. I am not discussing the propriety of that provision at all, but stating the facts of the case. Right here I may state that the collaborative work in the study of effect of environment upon the quality of sweet corn saves annually about \$250,000, while the collaboration with the Treasury Department in the control of sugar polarization has resulted in an annual saving of an equal amount.

As I told you this morning, there are many lines of research in which we must cooperate with the Bureau of Plant Industry. That is the Bureau that has the growth and care of plants in charge; and Congress provides in so many words that this collaboration shall take place. The Chief of that Bureau and myself have gotten together and have made a memorandum of how that collaboration shall be conducted; and I think that is the ideal way of conducting these things in a great Department like the Department of Agriculture. For instance, the Chief of the Bureau of Plant Industry, if he wants chemical work done, instead of starting a special laboratory which he might not want more than six months, and then the work would be finished, comes down to me and says: "I want certain chemical investigation done in connection with this thing;" and I say: "Well, I am ready." And we will arrange for the proper man to do that. If I want to make some chemical investigation where work that comes within the scope of the Bureau of Plant Industry is necessary, I go to him and say: "I want you to grow me some crops, take charge of them, etc., for the study of this particular chemical question." He says: "All right; I will do it."

I will give you an illustration here of what we were doing in that line last year, so as to illustrate what I say.

At the time the Bureau of Chemistry was organized from the Division of Chemistry six years ago the experimental work in beet sugar was practically finished; nothing was left except certain researches. But the question with me was, after I had found out that there were certain areas in this country that produced richer beets than others, to find out why. So Congress gave authority to me in the appropriation act to study the environment of these regions, to see what factor of the environment was the active one in producing more sugar.

I did not want to start a weather bureau of my own for that purpose, because we had a pretty good one already established. So I asked Congress to put in "to collaborate with the Weather Bureau;" and that stands there now, for we are still collaborating with the Weather Bureau.

I went to Mr. Moore, and I said: "I want all the data relating to rainfall and temperature at certain points during the present year specifically prepared for my use, because I am going to study the

(Witness: Wiley.)

effects of these things on the chemical composition of the crops grown there." So he furnished me, without any expense at all to me (or to him, for that matter), all this material; and I got the benefit of it without spending a dollar of anybody's money except that which had been appropriated already. At the end of the year I have a complete transcript of all the data relating to the hours of sunshine and the hours of cloudiness, the number of rainfalls, the amount of rainfall, the distribution of it, the temperature variations, and everything I wanted to use; and in that way we made an investigation for five years of what it was that caused certain areas to produce more sugar in the sugar beet and what were the predominant factors. That was a chemical proposition, because we had to make careful chemical examinations all the time to follow out these things.

For five years we worked with the Weather Bureau, and we completed an investigation. That investigation, to my mind, was perfectly conclusive. We found out what the factors were in the environment that produced this increase of sugar; and we never could have done that except by collaboration, unless I had established a complete weather bureau of my own, or Mr. Moore had established a complete laboratory of his own. But by working together we did it much more effectively, and much more economically, and much more quickly. We found that the two factors which produced these results were length of hours of sunshine and the evenness of temperature, avoiding extremes of heat especially.

The CHAIRMAN. That is, a minimum low temperature?

Doctor WILEY. A minimum low temperature, and as long hours of sunshine as you could get. Therefore the farther north you go, and get longer days in the summer, other things being equal, you get richer beets; and the more even the temperature, and the more nearly at 70°, you get richer beets. That is of immense practical value, because it tells people where to go and what to look for in this matter. The soil did not affect the percentage of sugar; it affects the magnitude of the crop. A poor soil would produce a beet high in sugar up North, with a small crop; and a poor soil down South will produce the same amount of beets very low in sugar. A rich soil up North will produce 15 or 20 tons of beets high in sugar, and a rich soil in the South will produce 15 or 20 tons of beets low in sugar; and we traced those things in that way.

The next thing was one that interests your State, Mr. Chairman.

The CHAIRMAN. It was almost entirely a climatic proposition?

Doctor WILEY. It was a climatic proposition. It was differences of weather that produced those chemical results.

The next point we wanted to investigate, and one that we are investigating now, was this: It is the general idea that Maine sweet corn (Indian corn) is sweeter and better than that of any other part of the country. So last year, with the Bureau of Plant Industry, who did work for us in securing crops, and so on, we organized a study of what was the cause of this variation in sweet corn. So we had little fields, small areas, grown in Florida, in South Carolina, in Maryland, in Connecticut, and in Maine, all the same corn, grown as far as possible in the same way and under the same conditions, except the variation in moisture; and these we have a complete record of, and our Bureau did the chemical work. We have one season's

(Witness: Wiley.)

data (1905) already finished, and this season's data almost completed, and we are going to get at the fact, after a while, as to why it is that some areas produce better sweet corn than others; and our farmers will be able to utilize that fact practically.

The CHAIRMAN. What is the result up to date?

Doctor WILEY. The result up to date is not just as we might have inferred from the other: That where you get more sunshine and lower temperatures, other things being equal, you get the sweeter corn, because those are conditions that produce sugar. But there are important variations, due probably to latitude and temperature, which can be determined.

The CHAIRMAN. The same factors that affect the beet-sugar proposition obviously ought to produce the same result in connection with the sweet-corn proposition?

Doctor WILEY. That is what led me into that investigation. I thought if it was true in one case it might be true in the other. But it is not so prominently true, because we can grow a very sweet corn in Florida, but not quite so palatable as we can in Maine. There are other factors in operation.

But the most important practical point we brought out, Mr. Chairman, was the rapidity with which the sugar in an ear of sweet corn, soft corn, ready for consumption, will diminish after you separate it from the stalk unless precautions are taken to keep it sweet. We found that in twenty-four hours the sugar content of an ear of corn pulled and exposed to an ordinary September or August temperature would fall rapidly. The life of the corn is still going on, and the corn, no longer being able to supply its sugar from the stalk, is converting its own sugar into starch. That shows that you must immediately put your freshly pulled corn in cold storage to check that and get it to the market just as soon as possible. That is one of the most practical points that was incidentally developed in this examination.

The CHAIRMAN. It ought to go immediately from the field to the factory?

Doctor WILEY. From the field to the factory just as quickly as you can get it. That explains why a man says, "Well, when I go out in the morning before breakfast in my garden and pull my corn and cook it, it is so much better than what I get in the market." It is better, and that is the reason it is better.

The CHAIRMAN. It is not a question of sentiment—it is a fact?

Doctor WILEY. It is not a question of sentiment—it is an actual fact.

The CHAIRMAN. And the nearer he can pull it to the time he puts it into the pot to boil, the better his corn is, I suppose?

Doctor WILEY. We also collaborate with the Bureau of Animal Industry in a great many of their investigations. For instance, Congress provides that all of the chemical analyses in connection with the execution of the law relating to renovated butter shall be done in the Bureau of Chemistry, and we do in our bureau practically all the work for the dairy division of the Bureau of Animal Industry. They collect the samples. We have nothing to do with that, and in my opinion it is much more economically done and better done than if they were to go and hire their own chemists and try to do it themselves, because we have the skill, we have the apparatus, we have to

(Witness: Wiley.)

keep a man skilled in dairy analysis anyway, for our general work, and we just let him do that work.

Last autumn, when the Bureau of Animal Industry was called on to provide for the enforcement of the meat-inspection act, we placed our whole force here and at all points at the disposition of that Bureau for a month.

The CHAIRMAN. Butter is considered as coming within the scope of the Bureau of Animal Industry, is it?

Doctor WILEY. Renovated butter is, by law. The execution of the law relating to renovated butter is divided between the Treasury Department and the Bureau of Animal Industry.

The CHAIRMAN. Oh, yes.

Doctor WILEY. And the act of Congress provides that the chemical work shall be done in the Bureau of Chemistry. In that way we come right into contact with practical things in the execution of our work in the Bureau.

We also do all of the chemical work for the Bureau of Entomology. They are interested in insecticides. Some insecticides are good and some are bad. They want to know why. To find that out they have either got to set up a laboratory of their own or they have got to come to us. So they bring us their samples constantly, and under the law we are authorized to do their chemical work for them, and we are very glad to do it. And then comes the point.

I will send my men with theirs out into the field and apply these insecticides; and then we gather afterwards samples of the foliage and see how much injury has been done. We want to apply the insecticide in such a way as to kill the insect and save the plant. So we gather with them these samples, or bring them in. Then we make the analyses, and then collaborate with them, and we give them our data, or they give us their data, and we publish it together.

There is another point in which we come in direct practical contact with problems relating to practical agriculture.

The CHAIRMAN. Do you investigate in relation to the nutritive value of foods?

Doctor WILEY. We do not do much in regard to the nutritive value of foods, because that matter is confided by Congress to another branch of the Department of Agriculture. The nutrition investigations are put in the Office of Experiment Stations, and we do not do any of that work. That is done mostly by other chemists, but not in the Department of Agriculture. They get chemists out in the States to do that at different places. We study the foods in relation to their unwholesomeness rather than their nutrition. That is our great work. That is one of the most important works that we do, and we do that by express authority of Congress.

For instance, we are not so much interested—of course we are interested, but not under our law—in whether this food is more nutritious than that, but in what is the effect of this food upon the health when you eat it. Our inquiry is as to wholesomeness rather than nutritive value; but of course you can not separate the idea of wholesomeness from the nutritive value. A food that is nutritious is presumably wholesome. A food that is not nutritious is presumably unwholesome.

The CHAIRMAN. So that those two lines run into each other?

(Witness: Wiley.)

Doctor WILEY. Those two lines run into each other, but we do not duplicate the work of the Office of Experiment Stations at all. That work is a very excellent work, and was done formerly under the supervision, as you know, of Doctor Atwater, one of the most eminent physiological chemists of the world, who is now unhappily incapacitated by a paralytic stroke. But his successor, Professor Benedict, is also a most eminent and successful investigator, and that work is done under his supervision, and done excellently well. I think in this case, as in the other (and I have suggested this to the Secretary of Agriculture), that it might be well if that work were attached to my bureau rather than to the Office of Experiment Stations, which is not intended by the law to do any such work, and which has just dropped into it—you know how such things are. But I do not think I could do the work any better, nor would I get any other kind of people to do it. If I were choosing the people to do it, I would choose just the people that are doing it, but I think I could give them some good points, and I have no doubt that they could give me good points. As it is, we are totally separate, just as though there was a wall between us. I do not know what Doctor Benedict is doing, and he has no idea of what I am doing. He may be doing what I am doing, for anything I know, or I may be doing what he is doing.

The CHAIRMAN. And those are, of course, two subjects that almost inevitably blend?

Doctor WILEY. They are so closely related that of all others it seems to me they ought to come under some common direction.

The CHAIRMAN. You can not have one of those subjects without articulation with the other, practically.

Doctor WILEY. They must come together more or less intimately, but we do not do any of that work, nor, so far as we know, do they do any of our work. We carefully avoid it.

The CHAIRMAN. You have been making digestive experiments, I understand. That is on the line of wholesomeness, is it not?

Doctor WILEY. That is entirely different from the experiments that are made under Doctor Benedict's supervision—although his are digestive experiments, too, but for a different purpose altogether. Shall I explain that part of my work now?

The CHAIRMAN. Yes; in just a moment. Then those two results could be both reached at the same time without additional expense, could they not? That is, the results relating to nutrition and the results relating to wholesomeness could be obtained from the same patient, at the same time, in connection with the same subject-matter?

Doctor WILEY. That might be very well done, and with considerable economy, in my opinion. But the work of my Bureau is strictly defined by Congress, and I never transgress it so far as I know. I am always very respectful to Congress, and confine my work to what is authorized. But my work is definitely outlined by Congress—that is, to study the effect of preservatives, colors, and other substances added to foods, upon health and digestion; not the effect of foods upon health and digestion, but the effects of the things that are added to foods, and I confine myself strictly to that line of investigation.

The CHAIRMAN. That is, the adulterative processes?

Doctor WILEY. The effect of adulterations on health, in other

(Witness: Wiley.)

words; while Doctor Benedict studies the effect of foods in general upon nutrition—presumably pure foods.

I have explained briefly and given you an illustration of what we do in collaboration with other branches of the service in our own department. I will now try to outline the work that we are doing independently of anybody else in our department.

The CHAIRMAN. Yes.

Doctor WILEY. First, I may go right on with this idea of foods. The studies made by the Bureau of Chemistry of the effects produced upon health by the addition of preservatives and colors to foods have resulted in an annual saving of \$5,000,000. This is now the fifth year that we have been testing the effect upon health and digestion of preservatives and colors and other substances that have been commonly used in our foods. To do that we engage the services of young men who agree to eat these foods with these added substances. They are told exactly what they may expect or may not expect, and they sign a pledge that they will obey strictly the rules and regulations. We use only persons in the Department, and chiefly those in our own Bureau. Sometimes we do not have enough, and we go out to other bureaus and get these young men. We feed them. They enlist for a year. They take a pledge that they will stay with us for a year, and they are young men whose characters are unimpeachable. We not only know that they have passed the civil-service examination, but if we do not know them ourselves we get from their employers, their chiefs, statements respecting their reliability. In the 50 or 60 young men we have had, Mr. Chairman, in the last five years, only 3, that I know of, have ever violated their pledges, and those only partially. Three men, we found, had eaten things that we had not given them in that time, and in that way had violated the pledges that they gave us.

The CHAIRMAN. Do they get any additional compensation for undergoing these experiments?

Doctor WILEY. None whatever. They get their food free, but no more compensation.

The CHAIRMAN. It simply gives them their board?

Doctor WILEY. Their board; and they richly earn it, too, because they not only have to eat what we give them, which is weighed out to them, but they agree to eat it all, whether they want it or not; and they agree not to eat any more than we give them, no matter how hungry they may be.

The CHAIRMAN. It is an absolutely arbitrary regimen?

Doctor WILEY. Because we have to have a uniform regimen; and they are sometimes made ill, though not seriously. We never push them to anything that is serious.

The CHAIRMAN. You intend to keep watch of their physical condition, of course?

Doctor WILEY. Oh, they are watched very carefully. I am a physician myself, and I take charge of their medical treatment. They are examined carefully every day.

The CHAIRMAN. You might explain some of those experiments in detail, so that we will get a notion of how that is done.

Doctor WILEY. I can do that briefly. These men are first allowed to eat of wholesome food. We buy the best in the market; it is

(Witness: Wiley.)

carefully inspected by myself, and all analyzed besides. We buy the very best that the market affords; and they have what we call a preliminary period—that is, they eat for about ten days a ration which we weigh out to them, and we vary that ration so that they do not either gain or lose in weight. That is what we call the normal ration, which keeps them in their normal condition. Then we set that for the rest of the experiment. That is the set ration. They must eat that ration thereafter. Then we begin by adding to that a certain small quantity of one of the common preservatives, like borax, say. We add half a gram of borax a day to this food. They eat that for five or ten days. Then we increase it, say, to a gram, and they eat that for another ten days.

The CHAIRMAN. Meanwhile you are keeping a record of this?

Doctor WILEY. We keep a record of everything. All their excreta are collected and analyzed, the urine and the feces, just as carefully as the food that they eat; so there is nothing wasted. If they trim their finger nails, they have to bring the trimmings to us, or if their hair is cut they bring us the hair, so we can keep track of the income and outgo, just as you keep a bank account. In that way we can determine whether these things disturb the natural progress of affairs—what we call the metabolism, the process of the digestion—and we keep that up until we make them ill, until we produce some effect, some disturbance of some kind. Then we put them on the same ration and observe them for ten or fifteen days longer, to see that they are restored to their normal condition.

All this requires an enormous amount of analytical work; and yet it is the only way, Mr. Chairman, in which these great questions can be answered. You can theorize about it just as much as you please, but the facts must be ascertained before we can come to any final decision.

The CHAIRMAN. That is, you have to introduce these substances into the animal organism before you know what their real effect is going to be?

Doctor WILEY. Before you know what their real effect is going to be.

That has occupied, during the last five years, quite a large per cent of our energy. I suppose 15 or 20 per cent of all the work we have done in the Bureau has been in that line. We have gone through that process, not only with borax and with boric acid, but with salicylic acid and salicylates, benzoic acid and benzoates, sulphurous acid and sulphites, formaldehyde, and sulphate of copper. They have all been tried in this way, over long periods of time, until we got results which satisfied us one way or the other.

The CHAIRMAN. Have you reached ultimate results?

Doctor WILEY. We have come to a conclusion on all these substances.

The CHAIRMAN. You have come to a conclusion?

Doctor WILEY. We have come to a conclusion on all these substances. We have others under way now. We are now getting ready to work on saltpeter—what is the effect of saltpeter on the system.

The CHAIRMAN. Are there any chemical bureaus that are engaged in similar experimentation and investigation?

(Witness: Wiley.)

Doctor WILEY. Nowhere in the world, in so far as I know.

The CHAIRMAN. So that you have no other investigations to measure yours with?

Doctor WILEY. No. There have been desultory experiments made on one or two men for a few days at a time.

The CHAIRMAN. Do scientific men elsewhere avail themselves of your work under these circumstances?

Doctor WILEY. They do; all over the world. I have just read in the London Lancet where some man published a little paper and said that the results obtained by Doctor Wiley were false, and he cited one experiment he made, lasting for about two days. The Lancet replied that before anybody would believe any such statement as that, the man must make an experiment as elaborate as that of Doctor Wiley, and as carefully controlled. The Lancet simply dismissed the whole thing without giving it any attention at all.

That work we have done for all these substances. We used 12 young men; we keep a corps of 12. Just now we are only using 6, because we had to cut down the size of our dining room, as we had to use it for some other purposes. We are using 6 now; but with our experience we can do about as well with 6 as we could in the beginning with 12, so that I do not think it interferes with the value of our results.

All of those things, we have found, are injurious to health, even in small quantities. We have not simply theorized about it, but we have proved it; and that is what people want. They want proof; they want facts.

The CHAIRMAN. Is this injury to health manifested principally, throughout your experiments, by loss of weight, or by an increase in an anæmic condition, or in what way?

Doctor WILEY. They have affected the system in many different ways; nearly always in loss of weight. In one or two cases there was no appreciable loss of weight, but very marked disturbances of other kinds. Loss of appetite is one of the things which we have to fight against, and lassitude, mental hebetude.

The CHAIRMAN. Is not that to a certain extent due to the monotony of the diet you have to give them?

Doctor WILEY. No; our diet is varied every day. We do not have the same things. We have a better diet than you get at a first-class boarding house, and a more varied diet. We use the same amount of food materials each day, however—the same value of nutrients. No; there is no doubt of the fact that it is due to the specific effects of the various preservatives; and these are manifested in a way which would be wholly undetected by the ordinary observer. They are subtle effects on disturbed metabolism which change the ratio of the income to the outgo.

For instance, in boric acid we found that boric acid caused a very large increase in the excretion of phosphoric acid. Now, that could only be done in one way, and that was by breaking down the phosphoric tissues of the body—the brain, the nerves, and the bones. We found that while in the normal excretion of phosphoric acid we could recover, say, 95 per cent of all ingested in the food in the fore period, when we began to give borax they were excreting 105 per cent—that is, 5 per cent more than was in the food; and that

(Witness: Wiley.)

could only come by a breaking down of the tissues. Now, when you consider that boron and phosphorus are chemically near each other, you can readily understand that the boron must have been supplanting the phosphorus in the tissues. That would never have been noticed except by this careful chemical control.

The CHAIRMAN. Except in case of a final breakdown?

Doctor WILEY. And that is a preliminary to a final breakdown, especially of the nervous system—the brain and the nerves.

The CHAIRMAN. When you reached that condition the individual would practically be beyond recovery?

Doctor WILEY. Well, he might be. There might be a very serious injury if that was kept up for a long while.

Another thing that was very interesting was the effect of the fumes of burning sulphur, which are so commonly used in the preservation of foods. We examined microscopically the blood of each of our men. We counted the blood corpuscles, white and red, and the amount of coloring matter. And we found that the moment you begin to take sulphurous acid, your blood corpuscles begin to fade and become diminished in number, and thus the oxygen-carrying capacity of the blood is to that extent diminished.

Our next most important work has been the control of imported food products, under the law which has been in existence for four or five years, at the ports of entry, to see that they are not adulterated or misbranded. The exclusion of adulterated and misbranded foods and drugs from this country results in an annual saving of about \$1,000,000. I would like to submit the table on page 11 of this report, to be copied as an illustration of what we have found in that line, and the printed matter on page 12, down to this point [indicating].

Number of imported food samples received by the Bureau of Chemistry during the year ended June 30, 1906, with results of inspection.

Result of inspection.	Wine.	Meat.	Olive oil.	Vegetables.	Fruit products.	Beverages.	Spices and condiments.	Fish in oil.	Vinegar.	Egg products.	Miscellaneous.	Total.
Found contrary to law:												
Released without prejudice to future decisions in similar cases	31	6	3	124	59	37	62	18	16	11	114	531
Admitted after the labels were changed to harmonize with the law	1	2	1	81	85	86	48	40	42	....	191	577
Required to be reshipped beyond the jurisdiction of the United States or destroyed	6	8	....	11	23	17	15	21	13	8	16	138
Total contrary to law	38	16	4	216	167	190	125	79	71	19	321	1,246
Found to comply with the law	395	85	313	457	744	470	332	743	112	162	690	4,503
Total number of samples examined from invoices detained	433	101	317	673	911	660	457	822	183	181	1,011	5,749
Samples taken from invoices not detained .....	....	....	....	....	....	3	3	32	2	4	5	49
Samples inspected on the floor of the examiner's room in appraiser's stores and invoices not detained .....	....	....	....	....	....	....	....	....	....	....	....	8,735
Shipments gone into consumption before receipt of our notice to relabel .....	....	....	....	....	....	....	....	....	....	....	....	10

^a Beginning October 1, 1905.

(Witness: Wiley.)

DAIRY LABORATORY.

During the year 818 samples were examined in this laboratory. The greater part of this number represent work done either for the Dairy Division, Bureau of Animal Industry, in the enforcement of the renovated-butter law or in cooperation with that division in an extended study of American cheese.

The total number of samples of butter, milk, and cream examined for the Dairy Division was 569, of which over 500 were samples of butter examined with reference to possible violation of the butter laws. The facts thus obtained have been used by the Bureau of Animal Industry in enforcing the law and in educating the butter renovators and creamery-butter makers to the necessity of a more strict control, especially of the water content of their product.

In the cheese investigation carried out cooperatively with the Dairy Division 146 samples, representing different ways of making, different ages, and different temperatures of ripening, were not only analyzed, but also studied in regard to their comparative digestibility by the method of artificial digestion in solutions of pepsin and pancreatin. The results of this investigation are now preparing for publication.

The remaining 103 miscellaneous samples of dairy products and dairy materials were received from various sources, and include samples of condensed milk, dried milk or milk powder, human milk, butter colors, and ice cream, in addition to 28 samples of cheese, used in studying methods for determining the comparative digestibility of different cheeses by artificial means.

Doctor WILEY. I will mark just a few additional items in the report, Mr. Chairman, instead of taking up your time, which will express better than I can offhand what you want to know, and I will submit them for copying in the record, which will avoid my taking up your time here.

The CHAIRMAN. That will be all right.

Doctor WILEY. I could not say these things any better than they are printed in this report, and I could do no better than give you an abstract of them, and I will submit a marked copy to the stenographer, which will save the time of the committee.

MISCELLANEOUS LABORATORY.

During the last year the miscellaneous laboratory has examined 695 samples. Some of these analyses were made as part of the work in special investigations of the laboratory which will be published later, and part were performed for other bureaus and divisions of this Department and other Departments of the National Government.

The work of the miscellaneous laboratory naturally divides itself into five different sections, which will receive separate treatment. These sections are as follows: First, waters; second, insecticides and fungicides; third, miscellaneous; fourth, cattle foods; fifth, the study of the effects of trade wastes on agriculture.

DRUG LABORATORY.

During the past fiscal year 553 samples of material were examined in this laboratory. Of this number 293 were chemical reagents, 121 proprietary medicinal remedies, 50 samples of whisky oils and essences, 37 samples of hops, 27 plant products for the Bureau of Plant Industry, 9 articles for the Bureau of Entomology, and 16 samples of a miscellaneous character.

CHEMICAL REAGENTS.

The chemicals examined were those regularly employed in chemical analyses in the Bureau of Chemistry, delivered on contract and special purchases. The objects of the examinations during the past year were the same as recorded in last year's report—i. e., to insure the receipt of reliable chemicals for analytical work, to secure data upon which standards may be based, and to place competitors on a uniform basis. The kinds of chemicals used and purchased were

(Witness: Wiley.)

the best of their respective types. It is necessary again to state that a goodly proportion of the chemicals delivered were of inferior quality, but it is also true that the proportion of rejections during the past year was smaller than in the previous years. Dealers are beginning to understand that it is necessary to label their goods in conformity with the contents of the packages, but this is not as yet generally recognized. Many chemicals are still labeled to indicate a high grade of goods when, as a matter of fact, the chemicals are of inferior quality. The designation "chemically pure" is markedly misleading at present, but the tendency is to deliver goods which conform more nearly to what this term should represent.

The committee on the testing of chemical reagents of the Association of Official Agricultural Chemists, of which the chief of the drug laboratory is the chairman, in its second report again set forth the necessity of carefully testing chemical reagents before they are employed for any accurate analytical operations. The committee is continuing its work, and the drug laboratory now has in its possession the analytical data for approximately 1,000 chemicals. These results and the standards required for the various chemicals will be published.

The investigations made of the purity of products and the reagents used in the Department of Agriculture, it is estimated result in an annual saving of \$5,000.

CONTRACTS LABORATORY.

During the past year there were examined in this laboratory 470 samples, in addition to the testing of about 500 samples of whisky for coloring matter. A very large part of the work of the laboratory has been done for other Departments, as the following summary will show :

	Number of samples.
War Department -----	69
Navy Department -----	19
Interior Department -----	65
Treasury Department -----	36
Post-Office Department -----	73
Department of Commerce and Labor -----	1
Department of Agriculture, board of awards -----	59
Government Printing Office -----	73

The character of samples analyzed was also quite varied, comprising lubricating oils, pigments, glues, glycerin, inking pads, inks, soap, face powders, coal, glassware, disinfectants, coffee, and numerous other miscellaneous substances. The routine work, as shown by these samples, is so varied and extensive as to consume the greater part of the time.

Several investigations of methods have been conducted and results published in scientific papers and bulletins, including work on writing inks, typewriter ribbons, reducing sugars, and artificial colors in whiskies.

PLANT ANALYSIS LABORATORY.

The cassava investigations in collaboration with the Bureau of Plant Industry have been continued. Work was conducted at Biloxi, Miss., in which a series of about 100 plants was studied with reference to the relation of seedlings to the parent plant in the development of seedling varieties. After this the work at Miami, Fla., was continued, in which variety studies were made, about 250 plants being examined.

Experiments were conducted with reference to putting the crop in a marketable condition before leaving the farm, in order that the producer may not be dependent upon the starch mill as the only market. To this end some practical experiments were made in drying the product, which demonstrated the feasibility and economy of the process.

Upon the dried product considerable time has been spent in a study of its feeding value and the possibility of making a second-grade starch by dry milling, with particular reference to its use as a material for the sizing of cotton goods and yarns. Also experiments on cassava are conducting with reference to the manufacture of alcohol as a product to be denatured and used in the arts. The

investigations of the growth of cassava and the methods of utilizing the starch, dextrine, etc., result in a per annum saving of \$50,000.

During the year complete analyses were made of 36 tobacco samples, and a series of experiments on the burning qualities of tobacco was conducted. These tests were on the raw product, in which the mechanical conditions were reduced to uniformity. For this purpose the samples were reduced to a powder and raised to a constant moisture content, then made into briquettes by means of an hydraulic press, after which they were burned under uniform conditions.

Fifty samples of crops, collected several years ago in a study of the relation of pot culture to plot culture, and 16 samples of oats grown in a series of experiments in the study of basic slag, were analyzed.

The study of tabulation of many data in hand completed the year's work.

CEREAL SECTION.

The cereal section was organized in 1904 with the purpose of collaborating with the Bureau of Plant Industry, principally along the following lines: (1) To improve the quality of wheat grown in this country; (2) to study the effect of varying climatic conditions on newly introduced varieties of grain, and (3) to study the changes in chemical composition which our own wheats undergo when growing in different localities.

More specifically the work of the section is as follows:

(1) The study of the deterioration of wheat, or the production of white spots, thus making the grain less glutenous. This study is being carried on both in greenhouse pot experiments and in the field in connection with the Colorado Experiment Station.

(2) The influence of fertilizers, especially phosphate salts, on the gluten content of wheat. This experiment is being conducted in collaboration with the Tennessee Experiment Station.

(3) The influence of a preceding legume crop on the gluten content of wheat, conducted in collaboration with the California Experiment Station at Modesto.

(4) Several experiments (so-called "triangular experiments") have been begun, the object of which is to grow a sample of grain from the same source at three different points (South Dakota, Colorado, and Tennessee, for example) in successive years, and also to grow a portion of the crop from each point at each of the other two points. These experiments will give a check on the influence of climate and of seed.

(5) The work reported last year on the protein, phosphorus, sulphur, and lectin content of barley and malt was continued, to determine whether these constituents exert any influence on the quality of the beer produced therefrom.

(6) Experiments are also under way in collaboration with the Tennessee, Kansas, and Nebraska experiment stations on the influence of the date of planting and the rate of seeding on the composition of cereals.

LEATHER AND PAPER LABORATORY.

TANNING MATERIALS.

The analytical work on Sicilian sumacs was completed about the end of the last calendar year, and as all the calculations have now been made the results are being prepared for publication as rapidly as possible. The results show conclusively that somewhat less than one-half of the samples were more or less adulterated, chiefly with lentiscus, while some were adulterated with sumac stems and other foreign materials. The investigation shows that adulterations may be detected both from the chemical analysis and from microscopic examination. The percentage of tannin and the color of the liquor made from the sumac are essential features of sumac examination from the tanner's point of view.

LEATHER.

There has been much complaint abroad that our leathers are heavily adulterated and weighted with worthless materials. Publication of these facts has considerably injured our export trade in certain leathers, and samples of these leathers are being collected to determine the truth of the statement as well as to determine whether our leathers are inferior to foreign leathers in this respect.

(Witness: Wiley.)

PAPERS.

Investigations on book and envelope papers, with particular reference to the needs of the public service, have been conducted during the past year, and it is hoped to complete this work during the current calendar year. A large number of envelopes, postal cards, stamped envelopes, and stamp papers have been examined and analyzed during the year for the Post-Office Department, and assistance has been given in revising the specifications for these classes of paper, so that they are more definite than before and will better secure the interests of the Government—in fact, a marked saving has already resulted from the work along this line.

WOOD TURPENTINE.

A large number of the wood-turpentine plants of the South were inspected and data collected with regard to the yields of the various processes, cost of materials and of operation, availability of raw material, etc. At the same time large samples of turpentine, prepared by the typical processes, were collected, and with the cooperation of two varnish makers varnishes were prepared from these in order to determine the value of wood turpentine for the manufacture of high-grade varnishes. As soon as sufficiently aged these varnishes will be tested practically and in the laboratory and a report of the results prepared. Samples of wood turpentine produced by various processes have also been collected for analysis. A small retort has been installed, and different methods of recovering turpentine from wood are studied.

DESTRUCTIVE DISTILLATION OF WOOD.

The wood-distillation centers of New York and Pennsylvania were visited and information collected with regard to the status and needs of this chemical industry, and cooperative experiments arranged to show the yield of valuable products and the quantity of each produced at different periods of the distillation. These experiments are planned to form the foundation for research work looking to the material increase of valuable products now obtained.

The number and character of samples received in the laboratory during the year are shown in the following table:

Papers	450
Tanning materials and leathers	50
Turpentine and woods	14
Beers	83
Miscellaneous	47
Total number of samples indexed	644

The investigations made of tanning materials, leather, paper used for Government publications, inks, and the distillation of wood result in an annual saving of about \$500,000.

MICROCHEMICAL LABORATORY.

As in previous years, the work of this laboratory has been conducted chiefly in cooperation with the other laboratories, a total of 1,067 examinations having been made.

In connection with the imported-food work there have been examined in collaboration with the Division of Foods samples of cocoas, mustards, and other spices, as well as a few confections. For the investigations upon fruit, microscopical examinations were made of persimmons and the alligator pear, making a total of 173 examinations.

The microscopical work upon cattle foods began during the previous year has been completed, 404 examinations having been made for the miscellaneous laboratory, and the results will be prepared for publication during the coming year.

In collaboration with the contracts laboratory there have been examined carbon papers and typewriter ribbons. In connection with the work of that laboratory for other branches of the Government service, microscopic examinations have been made of a few talcum powders and dextrans, giving a total of 79 examinations.

A large number of imported sumac samples have been examined for the leather and paper laboratory to determine the extent and nature of adulteration. There was also examined a number of paper samples for the Post-Office Department and the Government Printing Office. In fact, the largest part of the work upon papers during the past year has been on samples submitted by the Post-Office Department, and that the work is recognized to be of importance is shown by the fact that the number of samples submitted during this period has greatly increased over that of previous years. In connection with the work upon papers there have been carried on some investigations upon a method for the estimation of the percentages of pulp entering into papers. This involved the making up of a large number of composite pulps which were made the basis of the work. Altogether 248 examinations were made for this laboratory.

In connection with the work of the drug laboratory on fraudulent medicinal preparations for the Post-Office Department, 44 samples were examined to determine, by their structural nature, the kinds of material used, especially starches and powdered plant and glandular tissues.

I will call your attention to one thing on page 17 to show you the number of samples we examined in one of our laboratories for different Departments of the Government. For the War Department we examined 69 samples, for the Navy Department 19, for the Interior Department 65, for the Treasury Department 36, for the Post-Office Department 77, for the Department of Commerce and Labor 1, for the Government Printing Office 73, and that does not include two or three hundred examinations that were made for the Post-Office Department of objects which were supposed to be unfit to send in the mails and which they submit to us constantly for report. We usually have three or four on hand all the time. That indicates the collaboration that is going on and the work that we are doing for other Departments of the Government.

Mr. ZAPPONE. I notice there were samples examined for the Treasury Department and the Department of Commerce and Labor.

Doctor WILEY. Yes; we have an average of 100 samples a year from all these various Departments.

Mr. SAMUEL. Do those subjects perform any other work while they are under observation?

Doctor WILEY. Yes; they have a method of life which they pursue and which they follow without variation.

Mr. SAMUEL. That you have to have in order to give value to your experiments?

Doctor WILEY. Yes. They take a regular amount of exercise and they have a regular routine of life that they go through.

The CHAIRMAN. Your experiments are carefully controlled?

Doctor WILEY. Yes, sir.

Mr. SAMUEL. Have you made an examination as to the amount of pure food required by each individual?

Doctor WILEY. We do that as a preliminary. To keep them in a normal condition we make a preliminary test. That is the first thing we do. It is very curious, Mr. Chairman, that we have found that a man eats every day 1 per cent of his weight in dry food. That has come out in all these experiments for the last five years. That is, if you take the water out of your food and count just the dry matter you eat, if you weigh 150 pounds, you will find that you eat $1\frac{1}{2}$ pounds of dry matter in your food every day. It requires just one hundred days to eat your head off.

The CHAIRMAN. Does that prove true of practically everybody?

(Witness: Wiley.)

Doctor WILEY. Yes; that is the average of sixty healthy young men.

The CHAIRMAN. Take a man that weighs 300 pounds, would that man eat 3 pounds of dry food a day?

Doctor WILEY. Probably the rule would not hold true in such an extraordinary case as that, but I mean that that is the rule for the ordinary man.

The CHAIRMAN. The ordinary man?

Doctor WILEY. Yes, sir.

The CHAIRMAN. If a man eats less, will he lose in weight?

Doctor WILEY. Yes; if he eats less he will lose in weight, and if he eats more he ought to gain in weight. The weight of the food is about $4\frac{1}{2}$ pounds for liquids and solids every day.

The CHAIRMAN. That 1 per cent is about the maximum amount of food that a man can eat and properly digest and utilize in his system?

Doctor WILEY. That is under ordinary conditions, and not at hard labor. We do not have those conditions. That would require more. But for a man who is doing the ordinary labor of a Government clerk that is about the average.

The CHAIRMAN. If he ate in excess of that, that would involve the use of energy for the purpose of assimilating the extra food?

Doctor WILEY. Or excreting it.

The CHAIRMAN. Yes; or excreting it.

Doctor WILEY. Yes; and that would be detrimental.

Mr. SAMUEL. Did you ascertain what were the best kinds of foods for mental labor?

Doctor WILEY. We never have entered into any such investigations as that; but the general opinion as to that, that there are particular kinds of food that nourish particular parts of the body, in my opinion is quite erroneous.

The CHAIRMAN. There is no particular kind of nutrition?

Doctor WILEY. No particular kind.

The CHAIRMAN. It is simply a question of general nutrition?

Doctor WILEY. Yes; I see advertised nerve food and brain food. That is all nonsense.

Mr. SAMUEL. Do any of those drugs which are added to foods have a fattening effect?

Doctor WILEY. It is well known that starches increase—

Mr. SAMUEL. No; I am speaking of the drugs.

Doctor WILEY. No; none of them has a fattening effect. Most of them tend to have a degrading effect.

Mr. SAMUEL. Do any drugs have a fattening effect?

Doctor WILEY. Yes; it is well known that arsenic up to a certain point has a fattening effect—that is, a man gains in weight until he gets up to a certain limit, and then he dies. It is a poison.

Mr. SAMUEL. You did not make any experiments with alcohol?

Doctor WILEY. No, sir. I did not seek to go into alcohol experiments, because that is being worked out by another body in this country, called the Committee of Fifty, and they are doing very good work on that line, and I did not care to duplicate it.

Mr. SAMUEL. That is not under Government supervision?

Doctor WILEY. No.

Mr. SAMUEL. What effect do these drugs tend to produce?

(Witness: Wiley.)

Doctor WILEY. I do not think that any of them tend to produce any specific effect except as they may weaken an organ and render it susceptible. For instance, in the case of borax, 83 per cent of all the borax that my boys ate came out through the kidneys. And you put that burden on the kidneys for months and years and the first thing you know you will have either diabetes or Bright's disease as the result of the breaking down of the resisting power of the kidneys under this extra work, and in that way you might say that these preservatives will tend to produce a certain disease. In the case of benzoate of soda, a lot of it is converted into hippuric acid, which is a severe poison, and if it is not excreted through the urine it has a tendency to produce uremic poisoning.

The CHAIRMAN. For every exciting cause you find a predisposition to that result?

Doctor WILEY. Yes. A man may drink a glass of typhoid germs if he is in vigorous health and may not get typhoid fever, because his system will throw off the poison. But if he is broken down and in weakened condition, one of these germs will get hold of his intestines and produce ulceration, and he will have typhoid fever. And the same way you take pneumonia germs. Not a man in this room but has a pneumonia germ in his mouth, according to General Sternberg, and they do not affect the healthy lung; but you get a cold and one of those germs will take its seat in your lungs and you will have inflammation of the lungs.

The CHAIRMAN. Pneumonia is a germ disease?

Doctor WILEY. Yes.

Mr. SAMUEL. Does saltpeter have any effect on the kidneys?

Doctor WILEY. As to saltpeter, we have not made any investigation as to that, but it is known to have a diuretic effect on the kidneys under certain conditions. There is no doubt that it may very essentially aid in the operations of the kidneys.

There is one thing in regard to the results of all our work, and that is that we believe in them unless somebody can show a fault in them; and I am more than anxious to know if there is any fault, so much so that I have repeated a certain series of experiments because one gentleman in whom I have great confidence at a symposium at New York where we both spoke stated that I had certainly made a mistake as to the sulphurous acid producing a diminution in the red blood corpuscles; so that I went to work and conducted a new series of experiments, which when completed entirely corroborated my former statements, which absolutely showed the depletion of these red blood corpuscles, so that I now feel secure in the position that I formerly occupied.

Mr. SAMUEL. You do not investigate the effect of drugs other than those used in adulteration of foods?

Doctor WILEY. No; we have no authority of Congress to do that. It would be a very desirable thing to do, but we are not transgressing the authority which Congress has conferred upon us. But we do, under the authority of Congress, investigate the adulteration of drugs.

The CHAIRMAN. What is the fact, Doctor, about mastication of different kinds of food with reference to digestion?

(Witness: Wiley.)

Doctor WILEY. The better you masticate a starchy food the more readily the starch is digested, because a large part of the digestion takes part in the mouth, converting the starch into sugar, and the starch carries an enzyme which converts starch into sugar. I have often made experiments with saliva. Boil a little starch with water so as to make a paste, and when cool (blood heat) you can convert the whole of it into sugar inside of thirty seconds with good saliva; it is almost instantaneous.

Now, with the starch in food, the operation is of course much slower, but the digestion begins in the mouth, and as you are chewing your food you are digesting it, and the more you chew it the more rapidly digestion takes place; so that I think it is a wise precaution to chew your food.

In regard to meats it is entirely different. You can chew meat all day and it does not digest any more than if you swallowed it immediately. It does not begin to digest until it gets into the stomach and meets the pepsin.

The CHAIRMAN. And the saliva produced by this chewing does not go into the stomach for the purpose of producing any useful result?

Doctor WILEY. Oh, yes; the saliva is useful all through the process of digestion so long as there is any starch there. These enzymes go into the stomach and continue the process of digestion inside of the stomach. But the process of digestion carried on inside of the stomach is a different process. The juices in the stomach are an acid medium, and the stomach digests the protein, and the starch which has been held in the stomach after it passes through the small intestines becomes alkaline again, and then these enzymes go to work and finish up the starch.

Mr. SAMUEL. What do you consider the best food for a man to eat?

Doctor WILEY. I think a man ought to choose his own ration. Lots of people are vegetarians, and they are good, wholesome people. I think we eat too much meat, myself, for health. I have voluntarily cut my meat down to one meal a day, and I do not eat very much at that. I think that for the sustenance of physical exertion, if you have hard work to do, there is nothing better than starch and sugar, and the records of physical exertion bear me out in that. The cereal-eating nations can endure more physical toil than the meat-eating nations. That is not the accepted view, but it is true. You can not tire out a Jap who eats rice. They will take a jinrikisha and draw you all day around the town on a pound of rice and be as fresh at the close of the day as when they started, and you could not do that on a pound of meat to save your life. There is much more energy for exertion in starch than in meat. But, of course, by a diet containing too much starch in proportion you starve the muscles and other protein parts of your body, and the ration which a man naturally chooses is, to my mind, one part of protein to six and a half parts of starch and fat. That is what we want; that is the normal ration, and that, I believe, is the best ration for man. You get your protein in the wheat and beans and peas and meat, you get your fat in butter and fat meat, and you get your carbohydrates in starch and sugar and lean meat and butter.

Mr. SAMUEL. Does too much of any of these elements tend to produce disease?

(Witness: Wiley.)

Doctor WILEY. I do not think it tends to produce disease, except when long continued, but I heard the chief surgeon of the Japanese navy last winter deliver a lecture on the eradication of the beriberi from the Japanese navy. They tried everything, and finally this surgeon thought that it might be because they ate so much starch. Rice was their principal food. So he changed the ration and gave them more meat and more fish, put more protein into the ration, and the beriberi absolutely disappeared within a very short time. So that there was an instance where starch actually produced beriberi, which is a very fatal disease.

The CHAIRMAN. What is the nature of that disease?

Doctor WILEY. It is a disease of the intestinal organs, like cholera. I never saw a case. He merely stated the symptoms and told how he eradicated it, and he said that throughout the whole course of the war with Russia he did not think that they had a single case of beriberi on a Japanese ship. So that there is a danger in unbalancing the ration. You must have a certain amount of protein and a certain amount of starch and a certain amount of fat. You can get your protein out of beans and peas and gluten of wheat as well as out of meat. But you only get one item of the food in meat—that is protein—while in wheat you get everything that you need, mineral and all.

The CHAIRMAN. Was your Bureau able to answer the demands made upon it in connection with the examination of soils prior to the separation of the Bureau of Soils from your department?

Doctor WILEY. Prior to the organization of the Bureau of Soils we never had, as I said this morning in speaking of another subject, made any examinations of soils excepting as it came along in the ordinary work, except in that one instance where Congress made this appropriation for a special investigation of soils, and especially in regard to nitrifying organisms. We had met all the demands up to that time, but there had been no special study of soils in the department up to that time.

Mr. CHAIRMAN: Has your Bureau ever examined the coal used by other branches of the United States Government in Washington? If so, please state for what branches, giving the approximate cost to your Bureau for doing the work.

Doctor WILEY. Yes, sir; for several years we have examined the coals used by one branch of the service of the Interior Department, viz, the St. Elizabeth Hospital for the Insane. This work has been done practically at no cost, since we have all the apparatus necessary for the work and trained men who simply give the time required for the analysis. I suppose \$100 would cover all the expense to us for the examinations we have made for the St. Elizabeth Hospital. We burn the coal in the calorimeter to determine its heating power, and examine it for its content of sulphur, phosphorus, moisture, and ash.

Mr. CHAIRMAN: Would it be feasible for your Bureau to continue the examination of coal for other branches of the United States Government in Washington without increasing the personnel or impairing the efficiency of your Bureau?

Doctor WILEY. We could continue to make examinations of the analytical character mentioned above for the various Departments

(Witness: Wiley.)

of the Government at a minimum of expense. If all the Departments of the Government should ask for frequent analyses we should probably have to increase the personnel of the force. If examinations should be asked for so as to make not more than eight or ten a month we could make them without increasing the personnel or without impairing the efficiency of the Bureau. You will understand, of course, that we are not put to any expense for securing the samples. We do not investigate the mine or the methods of mining or transportation, nor do we supervise the sampling. We simply take the samples as they are sent to us, crush them up, get a fair subsample of the whole, and do the analytical work.

The CHAIRMAN. We are very much obliged to you, Doctor.

From information supplied by the heads of the several Departments, in response to inquiries of the chairman of the committee, the following table, showing the approximate cost of coal in the District of Columbia, has been prepared:

Commissioners of District of Columbia.....	\$123, 422. 85
Department of Commerce and Labor.....	11, 956. 15
Department of Justice.....	1, 337. 37
Post-Office Department.....	15, 854. 58
Department of the Interior.....	92, 733. 29
Treasury Department.....	29, 125. 00
Department of Agriculture.....	16, 933. 11
War, State, and Navy building.....	33, 959. 14
Total.....	325, 321. 49

The following letters are in reply to an inquiry from the chairman of the Committee on Expenditures in the Department of Agriculture in regard to laboratories and the cost of maintaining same:

DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, January 28, 1907.

HON. CHARLES E. LITTLEFIELD,
House of Representatives.

SIR: I beg to acknowledge receipt of your letter of January 28, requesting information regarding the personnel of the Bureau of Standards and the scope of its chemical investigation. In reply I would state that the personnel of the Bureau may be classed in three groups. The first has to do with the scientific work of the Bureau, the second with the office and clerical work, and the third with the operation of the mechanical plant, the construction of apparatus, and the care of the buildings and grounds. The plan of organization in each of these groups involves a regular gradation of salaries.

In recommending persons for appointment to the staff of the Bureau every precaution is taken to insure that they possess the proper qualifications for the work in hand and the fundamental education or training necessary for advancement in the service.

The staff of the Bureau, including the Director, consists of 95 persons, distributed as follows:

Scientific force.—One physicist, at \$4,000; 1 chemist, at \$4,000; 4 associate physicists, ranging from \$2,000 to \$2,500; 1 associate chemist, at \$2,500; 13 assistant physicists, ranging from \$1,400 to \$1,800; 2 assistant chemists, \$1,400 and \$1,600; 17 laboratory assistants, ranging from \$900 to \$1,200; 4 aids, ranging from \$600 to \$720; 7 laboratory apprentices, ranging from \$480 to \$540; total, 50.

The physicist and chemist serve in the capacity of general scientific advisers in carrying on the Bureau's work. In addition to this they direct specific lines of work; for example, the physicist directs all of the work in electricity and the chemist directs all of the chemical work done in the Bureau. The associate physicists and chemists are in charge of specific lines of work. One associate physicist, for example, is in charge of the work in connection with weights and measures, another that

(Witness: Wiley.)

of heat and thermometry, and another with that of one particular branch of the electrical work. The assistant physicists and chemists assist in carrying out investigations and may be in charge of specific pieces of work. In general, their work involves considerable responsibility and calls for originality. The laboratory assistants perform the routine work of the laboratory and assist in carrying on investigations and do a greater part of the testing work carried on at the Bureau. Aids and laboratory apprentices assist in the routine work of testing.

Office and clerical force.—One secretary, at \$2,000; 1 librarian, at \$1,400; 8 clerks, ranging from \$720 to \$1,600; 1 storekeeper, at \$1,000; 1 draftsman, at \$1,200; 2 assistant messengers, at \$720; and 3 messenger boys, at \$360; total, 17.

The duties of the office and clerical force include the care and distribution of publications, the clerical work in connection with the records, files, purchases, and certificates; also stenographic service for the whole Bureau.

Engineering and mechanical force.—One engineer, at \$1,800; 3 assistant engineers, ranging from \$900 to \$1,000; 1 electrician, at \$900; 1 chief mechanic, at \$1,600; 5 mechanics, ranging from \$900 to \$1,400; 1 woodworker, at \$840; 2 skilled laborers, at \$720; 3 firemen, at \$720; 2 watchmen, at \$720; 1 elevator boy, at \$360; 3 laborers, at \$660; 2 janitors, at \$600 and \$660; and 2 female laborers, at \$360; total, 27.

The engineering and mechanical force has to do with the operation of the machinery and the care and improvement of the buildings and grounds. The mechanical plant in connection with the Bureau includes electric generators for generating the various kinds of current used commercially, a refrigerating machine, pumps, compressors, and many other pieces of machinery, besides the heating and ventilating plant, which in the case of the physical laboratory is necessarily complicated and must receive very careful attention. The mechanics construct the special apparatus used in connection with the work of the laboratory. Much of the work done at the Bureau consists in the improvement of methods of measurement and the development of new apparatus for that process. Such apparatus must necessarily be built under the direct supervision of the scientific men who are doing the work. The duties of the watchmen, janitors, laborers, etc., are precisely the same as in other Bureaus.

In regard to the scope of the chemical investigations carried on at the Bureau I would state that almost every problem taken up in connection with standards or precise measurements involves the question of purity or composition of materials the solution of which requires chemists of the highest ability. Furthermore, the chemical section of the Bureau perfects methods for the determination of the purity of reagents and materials. Chemical analyses are not generally made, except in cases where the information gained is such as to be of value to important interests or to a large number of individuals. The Bureau is frequently called upon, especially by the Government service, for assistance in connection with the preparation of standard specifications for Government purchases. This work in most cases requires the services of chemists.

Respectfully,

OSCAR S. STRAUS, *Secretary.*

DEPARTMENT OF THE INTERIOR,
Washington, January 25, 1907.

HON. CHARLES E. LITTLEFIELD,
House of Representatives.

DEAR SIR: I have received yours of the 22d, asking to be advised of the names, positions, and salaries of the employees of the Geological Survey; also as to the scope of the chemical investigations in which the laboratory of the Survey engages.

As the best means of answering your inquiry, I send you a copy of the latest Register of this Department, issued July, 1906. Pages 178 to 202 are devoted to the personnel of the Survey.

On pages 187 and 188 will be found the division of chemical and physical research. The members of this division investigate problems which may arise in the geological work of the Survey, particularly in the line of investigating the mineral resources of the country.

Very respectfully,

E. A. HITCHCOCK, *Secretary.*

(Witness: Wiley.)

GEOLOGICAL SURVEY.

Division of Chemical and Physical Researches.

Name and position.	Whence appointed and present residence.	Original appointment.	Present appointment.	Salary.
<i>Geologist in charge.</i>				
Becker, George F	4th Cal	July 8, 1879	June 15, 1903	\$4,000
<i>Chemists.</i>				
Clarke, Frank W	1st Ohio	June 30, 1883	.....	" 3,000
Hillebrand, William F	1st Colo.	June 23, 1880	Dec. 10, 1900	2,700
<i>Assistant chemists.</i>				
Steiger, George	D. C	Mar. 29, 1892	June 20, 1904	1,800
Sullivan, Eugene C	2d Mich	Sept. 21, 1903	.....	1,800
Schaller, Waldemar T	5th Cal	Sept. 17, 1903	June 30, 1906	1,400
<i>Physical geologist.</i>				
Day, Arthur L	2d Conn	Nov. 14, 1900	June 20, 1904	2,400
<i>Assistant physical geologist.</i>				
Van Orstrand, Charles E	16th Ill	July 23, 1901	.....do	1,400
<i>Chemical geologist.</i>				
Allen, Eugene T	16th Mo	Feb. 1, 1901	June 15, 1903	2,000
<i>Stenographer.</i>				
Susan, Miss Alice F	2d Wis	Mar. 23, 1904	Dec. 30, 1905	1,000
<i>Skilled laborer.</i>				
Nichols, Harry T	23d Ill	Aug. 15, 1892	June 15, 1905	900
<i>Laboratory apprentice.</i>				
Hoffman, George R	D. C	June 13, 1904	.....do	600

a Permanent force.

The letters which follow, from the Treasury Department, were forwarded to the committee by the Secretary of the Treasury:

TREASURY DEPARTMENT,
SURGEON-GENERAL, PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE,
Washington, January 28, 1907.

The SECRETARY OF THE TREASURY,
Washington, D. C.

SIR: In reply to your letter dated January 23, 1907, inclosing copy of a letter from Hon. Charles E. Littlefield, chairman Committee on Expenditures in the Treasury Department, requesting names of the men, their positions and salaries, in the Hygienic Laboratory and the scope of the chemical investigations carried on, I have the honor to inclose herewith a list of the officers and employees of the above-mentioned laboratory on duty January 26, 1907. This list also shows the divisions of the laboratory, as provided for by the act of Congress, approved July 1, 1902.

The investigations of the infectious and contagious diseases and matters pertaining to the public health carried on in the Hygienic Laboratory are of such breadth that at times they demand the combined efforts of all the divisions for their solution. Some of these investigations are essentially of a chemical nature, but all of them present a chemical aspect, which at times demands the coordination of the Division of Chemistry with other divisions of the laboratory.

An investigation into the origin and prevalence of typhoid fever in the District of Columbia, which has engaged the attention of the divisions of chemistry, pathology, and bacteriology, and zoology during the past six months, may be mentioned because of its great practical importance and to show the coordination of the divisions of the laboratory in public health problems. The chemical portion of this work consisted in sanitary analyses of many samples of drinking water taken from the public water supply and all the wells and springs in the District; chemical analyses of samples of manufactured and natural ice used in the District; chemical examinations of milk for preservatives, etc.

(Witness: Wiley.)

The routine and research chemical work coming within the purview of the division of chemistry is as follows: The chemical examination, before purchase, of all drugs and chemicals used by the service, to determine their purity and strength; the chemical analyses of water supplies, to determine the significance of organic and inorganic matter in drinking water in relation to the public health; the chemical examination of certain disinfecting and cleansing preparations for the Department, to determine their constitution and value; research in the chemistry of sulphur and formaldehyde fumigation, i. e., the chemical proportion of these gases when generated for disinfecting purposes; the chemistry of the blood in health and disease; the stability of certain ferments (oxidases); the discovery of tests to determine preservatives and adulterants in foods and drugs; and, finally, coordination with the other divisions in the study of hereditary transmission of diseases.

Respectfully,

WALTER WYMAN,
Surgeon-General.

List of officers and employees at Hygienic Laboratory, Washington, D. C., January 26, 1907.

Name.	Designation.	Duty.	Pay.	
			Mo.	Year.
<i>Laboratory in general.</i>				
M. J. Rosenan ^a	Passed assistant surgeon ..	Director	\$3,	250
John F. Anderson ^a	do	Assistant director	2,	200
F. J. Herty	Pharmacist	Pharmacist	960	
E. B. K. Foltz	Attendant	Acting librarian and stenographer ..	1,400	
F. H. Mattingly	do	Acting engineer	100	
F. A. McDermott	do	Acting time clerk and assistant to pharmacist ..	75	
B. A. Omohundro	do	Acting carpenter	65	
T. J. Sanford	do	Acting stableman	50	
John C. Sebourne	do	Care of animals and cleaning ..	50	
G. M. Beall	do	Acting as-sistant engineer ..	50	
M. R. Sanford	do	Acting night watchman	50	
J. D. Rosser	do	do	50	
R. C. Beavers	do	Acting messenger	40	
<i>Division of pathology and bacteriology.</i>				
L. L. Lumsden ^a	Passed assistant surgeon ..	Typhoid board	2,200	
W. W. King ^a	do	Student officer		
George W. McCoy ^a	do	do		
A. M. Stimson ^a	Assistant surgeon	Assistant	1,600	
Wm. Lindgren	Attendant	Laboratory assistant	90	
John H. Hutson	do	do	70	
<i>Division of zoology.</i>				
Ch. Wardell Stiles	Zoologist	Chief of division	3,800	
Joseph Goldberger ^a	Passed assistant surgeon ..	Assistant	2,200	
Leonard H. Wilder	Artist	Artist	1,400	
Walter D. Cannon	Attendant	Student assistant	100	
David G. Willets	do	Assistant	75	
Frank F. Scanlon	do	General assistant	50	
Arthur Stevenson	do	do	50	
<i>Division of pharmacology.</i>				
Reid Hunt	Pharmacologist	Chief of division	3,600	
Atherton Seidell	Technical assistant	Technical assistant	2,000	
J. Houston Schrader	Attendant	General assistant	60	
Geo. W. Beavers	do	do	50	
<i>Division of chemistry.</i>				
Joseph H. Kastle	Chemist	Chief of division	3,600	
Norman Roberts ^a	Assistant surgeon	Student assistant		
H. L. Amoss	Attendant	Assistant	100	
J. S. McHargue	do	General assistant	60	
F. G. Wiesselblad	do	do	50	

^a Commissioned medical officers.

The salaries of Passed Asst. Surgs. W. W. King and Walter McCoy and Asst. Surg. Norman Roberts are not included in this list as they are temporarily detailed as student officers.

(Witness: Wiley.)

TREASURY DEPARTMENT,
OFFICE OF COMMISSIONER OF INTERNAL REVENUE,
Washington, January 26, 1907.

The SECRETARY OF THE TREASURY.

SIR: I have the honor to acknowledge the receipt of your letter of the 23d instant, inclosing copy of a letter from Hon. Charles E. Littlefield, chairman Committee on Expenditures in the Agricultural Department, requesting information concerning the character of the chemical work carried on in different branches of the Treasury Department.

I would report that the organization of the Division of Chemistry of this Office is as follows:

Name.	Position.	Salary.
C. A. Crampton	Chief chemist	\$3,000.00
L. M. Tolman	Chemist in charge	2,500.00
A. B. Adams	Assistant chemist	1,600.00
L. M. Law	do	1,200.00
A. L. Sullivan	do	1,200.00
L. B. Forst	do	1,200.00
E. H. Goodnow	do	900.00
S. B. Hale	Stenographer and clerk	1,200.00
W. S. Stevenson	Messenger	660.00

Of the above, the chief chemist and one \$1,200 assistant are paid from the appropriation for the execution of the denatured-alcohol law. The others are paid from the regular roll. The assistant chemists are listed as clerks, but are all qualified chemists.

The work of the division is to examine, analyze, and report upon all samples submitted for expert examination under internal-revenue laws and to give testimony in court concerning them when necessary; to supervise the tests performed by officers in the field with microscopes or portable stills; to advise the office upon any scientific question that may arise in connection with the gauging or stamping system of the Government, or concerning any of the industries coming within the control of the internal-revenue laws. The laws under which most of the samples examined are submitted are those taxing oleomargarine, adulterated butter, renovated butter, filled cheese, and mixed flour, but many samples are also examined of spirits, malt, and other fermented liquors, ciders, and nondescript beverages to determine their liability to tax.

The number and character of the samples examined will be seen from the report of the work of the division in the Annual Report of the Commissioner of Internal Revenue for the last fiscal year, a copy of which is transmitted herewith.

In addition to the duties of the division, which pertain directly to internal-revenue laws, much work is also done for other branches of the Treasury Department by direction of the Secretary, and also for other Departments as a matter of official courtesy. For example, the examination of samples submitted to the stationery division in connection with bids for supplies and the testing of deliveries on contracts have been performed annually for nearly twenty years, and similar work has been done for the division of customs, the different auditors, and for the superintendent of the Treasury.

The work in connection with the act of June 7, 1906, allowing the use of alcohol tax free for industrial purposes will greatly increase the work of the division. Every lot of alcohol which is denatured to unfit it for beverage purposes requires a chemical examination, more or less complex, of the denaturing material.

These tests will be mainly made by authorized private chemists at the expense of the distillers, but the laboratory of this office must supervise and check the work of the private chemists to some extent and provide special formulas and methods for their use. This laboratory must also examine samples in suspected frauds against the revenue arising under the operations of the law.

Respectfully,

JOHN W. YERKES,
Commissioner.

(Witness: Wiley.)

TREASURY DEPARTMENT,
OFFICE OF COMMISSIONER OF INTERNAL REVENUE,
Washington, October 6, 1906.

The following table shows the number and character of the samples examined in the laboratory at San Francisco, Cal., during the fiscal year ended June 30, 1906:

Fortified sweet wines.....	1,760
Miscellaneous:	
Blackstrap.....	6
Saki.....	12
Fusel oil.....	2
Butter.....	2
Total.....	1,782
Decrease from last fiscal year.....	606

The following table shows the number and character of the samples received in the laboratory at Washington during the past fiscal year:

Oleomargarine.....	29
Colored oleomargarine.....	69
Butter.....	139
Renovated butter.....	21
Adulterated butter.....	77
Oils, fats, etc., used in manufacture of oleomargarine.....	10
Fortified wines.....	104
Distilled liquors.....	111
Malt liquors.....	107
Fermented liquors other than malt.....	28
Miscellaneous beverages.....	34
Wines.....	22
Medicinal compounds.....	254
Flour.....	7
Ink.....	85
Typewriter ribbons.....	20
Mucilage.....	15
Sealing wax.....	13
Miscellaneous.....	56
Total.....	1,201
Decrease from last fiscal year.....	212

TREASURY DEPARTMENT,
OFFICE OF THE DIRECTOR OF THE MINT,
Washington, January 25, 1907.

The SECRETARY OF THE TREASURY.

SIR: I have the honor to acknowledge the receipt of your letter of the 23d instant, inclosing copy of a letter from Hon. C. E. Littlefield, chairman Committee on Expenditures in the Agricultural Department, requesting a statement regarding the employes engaged in the laboratory of this Bureau and the scope of the chemical investigations in which the laboratory engages. The following statement is respectfully submitted:

Assayer, Frederic P. Dewey.....	Salary. \$2,200
Assistant assayer, William J. McCaughey.....	1,200
Laborer, J. T. Bryant.....	660

Section 3539, Revised Statutes, provides that samples of coins shall be reserved from every delivery of coins at each mint and forwarded to Philadelphia for examination by the annual assay commission. This commission meets only once a year—in February—to examine the coinage of the previous year. In the meantime nearly all of the coins represented by the samples have gone out of the mints into circulation, and should any errors or defects be discovered it would be too late to rectify them. To guard against this, the section further provides: "Other pieces may at any time be taken for such tests as the Director of the Mint shall prescribe." Under this provision samples of coins are taken from three deliveries of each denomination made

(Witness: Wiley.)

each week at every mint and are immediately forwarded to the Bureau for special assay and examination by the assayer of the Mint Bureau.

The work of the Bureau laboratory then largely consists in the examination of these special assay coins, representing the work of the various mints to determine if they are within the legal requirements as to weight and fineness and for the detection of mechanical defects. It is often necessary to refer questions as they arise verbally to the Director for discussion and his final judgment and for the immediate application of remedies when necessary.

Various problems arising in the Mint Service relating to chemistry and metallurgy are referred to this laboratory for solution.

The examination, assay, and melting of coins for the Secret Service devolves upon this laboratory, and this work, too, requires personal conferences with the Secret Service.

Other Departments call upon this laboratory for assistance in metallurgical questions; for instance, the Printing Office, regarding the metals and alloys they use; the Post-Office as to the composition of ores subject to fraud orders, and the Geological Survey as to platinum bearing black sands.

Respectfully,

GEO. E. ROBERTS,
Director of the Mint.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING ARCHITECT,
Washington, January 24, 1907.

THE SECRETARY OF THE TREASURY.

SIR: In response to your request of the 23d instant, I have the honor to append a list of the employees of the laboratory of this Office, with their official designations and amounts of annual salaries:

Mr. Samuel S. Voorhees, engineer of tests.....	\$2, 400
Mr. John S. Miller, jr., assistant chemist	1, 600
Mr. Thomas V. Sullivan, assistant chemist.....	1, 400
Mr. Maurice M. Risler, skilled laborer.....	840

The laboratory is engaged in testing samples of materials in connection with contracts for public buildings under the control of this Department to determine whether or not they conform to the specification requirements, also samples of supplies, such as coal and oil, furnished under the control of the office of the chief clerk.

Respectfully,

J. K. TAYLOR, *Supervising Architect.*

WRITTEN STATEMENT OF THE CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE, RELATIVE TO LABORATORIES MAINTAINED IN HIS BUREAU.

The laboratories of the Bureau of Animal Industry in Washington are contained in two buildings, situated about 30 feet apart. Both of these buildings, which are rented, are supplied by one central power plant.

The work conducted by these laboratories involves the following sciences: Zoology, bacteriology, pathology, physiology, chemistry, hygiene, anatomy, physics, therapeutics, and allied medical sciences.

There is no separate Division of Chemistry in the Bureau of Animal Industry, and therefore no head to such a division. The divisions known as the Biochemic Division and the Dairy Division both employ chemistry in their investigations, but the greater portion of the scientific work in these two divisions is devoted to research through other branches of science.

(Witness: Wiley.)

There is no purely chemical work carried on, with the exceptions noted below.^a

The prosecution of researches involving one of these sciences in practically all cases necessitates more or less extensive employment of the others. It is impossible to separate the bacteriological work completely from the chemical work. Physiological experiments can not be conducted without the use of anatomy, chemistry, and other sciences at the same time. Any attempt to separate completely the sciences of bacteriology and chemistry would be a great detriment to the work. Very little, if any, saving would be effected by concentrating all chemical work in one building, because the general laboratory equipment, such as heat, light, power, firemen, charwomen, air compressor, and vacuum pump, are needed for purely bacteriological as well as for purely chemical work. The charwomen employed in the laboratories are necessary for the amount of work, and they would be required, no matter whether all chemical work was concentrated in one building or placed as it is now, in connection with other scientific research. The only saving that appears likely might be to a slight extent in general apparatus. It seems quite safe to say that the cost of apparatus, as the work is now organized, would probably not be lessened \$300 if the chemical work of the Bureau of Animal Industry was consolidated with that of the Bureau of Chemistry.

If all the laboratories of the Department, organized as they now are, could be accommodated in one building, there would undoubtedly be a saving in the cost of firemen, watchmen, heat, and power. The amount of this saving would depend upon several factors and would not be absolute, for more firemen and watchmen are required in a large building than in a small one. As already indicated, this saving would not result from a change in organization of the work, but would be effected solely by location.

**WRITTEN STATEMENT OF THE CHIEF OF THE BUREAU OF SOILS,
DEPARTMENT OF AGRICULTURE, RELATIVE TO LABORATORIES
MAINTAINED IN HIS BUREAU.**

The laboratory work of the Bureau of Soils is divided under the following heads:

- (1) Analytical chemical work.
- (2) Research work:
 - (a) Physics.
 - (b) Physical chemistry.
 - (c) Biological chemistry.

The only line in which there is an apparent duplication of personnel and equipment is in the analytical chemical work. For this the Bureau has sufficient to take part of the time of two chemists, one at \$1,400 and the other at \$1,200 per annum, or the equivalent, probably, of one man at \$1,400 per annum, corresponding to about six-tenths of 1 per cent of the Bureau's appropriation. There would be no saving in light, heat, power, fireman, messenger, or charwoman

^a The only purely chemical work which is conducted by the Bureau of Animal Industry consists in a small number of analyses of dips, probably averaging less than 30 per year, and the chemical inspection of meat food products. Both of these lines of work are part of the inspection work of the Bureau of Animal Industry, the chemical work being merely an incident of meat inspection and used to determine the wholesomeness of meat-food products.

(Witness: Wiley.)

services, and practically no saving in apparatus or power machinery by having this man transferred, as the entire present equipment of the Bureau of Soils would still be needed for the research work in the soil laboratories. There would be the disadvantage of having this necessary analytical work directed through another laboratory disconnected with the soil laboratories. There would therefore be no real saving to the Department, but on the contrary would increase the labor and time necessary to secure results.

It is of course apparent that upon the completion of the Department buildings, when the whole Bureau of Soils will go under the same roof with all other bureaus of the Department, there will be a saving of one fireman, coal, and the rent of buildings, which will amount approximately to \$5,470, of which about half would be attributable to the running expenses of the laboratories. There would be no saving in light, messengers, or charwomen needed for the present force, as these would all still be required. The saving in the power plants, air compressors, vacuum pumps, etc., would be so small as to be well covered by the above estimate.

WRITTEN STATEMENT OF THE CHIEF OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE, RELATIVE TO THE CONCENTRATION OF CHEMICAL WORK.

The Bureau of Plant Industry has no chemical laboratories, nor is it conducting any routine chemical investigations other than what are carried on in the laboratories of the Bureau of Chemistry proper. The Bureau of Plant Industry, however, like all other scientific bureaus, uses chemistry and physics as methods of research. A well-equipped pathological, physiological, or bacteriological laboratory requires equipment similar in some ways to that of a well-equipped chemical laboratory. Sterilizing apparatus, distilled water, exhaust and blast, steam, hot water, electric current, etc., are all used in common by such laboratories. The fact that the different bureaus of the Department are now in widely separated buildings and must maintain distinct appliances for furnishing laboratory requirements is no argument for a concentration of all chemical work.

In laying out the plans for the new buildings this question was very carefully considered. Our new laboratory buildings are built and equipped on a unit basis; that is, every room is a duplicate or unit of every other room. From one central power plant there may be obtained in any room any or all of the requirements for laboratory work mentioned above. It will make no difference whatever whether the laboratory is located on the extreme western wing or segment of the laboratory building or whether it is on the extreme eastern wing; the fundamental furnishings in both rooms, so far as laboratory work is concerned, will be the same.

From time to time during the last twenty years questions have arisen in regard to the concentration of all chemical work in one place in the city of Washington. In our judgment, this would be utterly impracticable and a step backward rather than forward. Every laboratory in the Department must necessarily use chemistry in its investigations at some time or other, just as it uses mathematics and physics. Every physiologist, pathologist, and physicist in the Bureau of Plant Industry had had a training in chemistry in exactly

the same way that he has had training in reading, writing, or mathematics. Investigations in pure chemistry, however, are not undertaken from the standpoint of the chemist any more than investigations of literature and mathematics are undertaken from the standpoint of those sciences. In the evolution of chemical studies and chemical work in all of our institutions, educational or otherwise, in this country the fact has been recognized that chemistry as a science must be specialized.

This whole question of the concentration of chemical and physical work has been thoroughly investigated by several committees in the Government service. Five or six years ago it was investigated by a special committee, with the result that recommendations were made looking toward the development of the chemical work of the Government along practically the same lines in which it is developing today. More recently the whole question has been taken up by the Keop Commission, and a full and detailed report has been furnished by a subcommittee to this commission on laboratory processes. This report is now in the hands of the central committee. The general recommendations of the subcommittee involve the concentration of work on the basis of problems and on the basis of the general equipment of men and apparatus now existing in the various branches of the Government. It is believed that any concentration beyond that recommended by the subcommittee would result in a detriment to the scientific work and no financial saving to the Government.

DIVISION OF PUBLICATIONS.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., Friday, January 25, 1907.

The committee met at 10 o'clock a. m.

Present: Representatives Littlefield (chairman) and Samuel.

Present, also, A. Zappone, esq., Chief of the Division of Accounts and disbursing clerk, Department of Agriculture; and George W. Hill, esq., Editor and Chief, Division of Publications, Agricultural Department.

STATEMENT OF GEORGE W. HILL, ESQ., EDITOR AND CHIEF OF DIVISION OF PUBLICATIONS, AGRICULTURAL DEPARTMENT.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You have already, as I understand it, gone over quite thoroughly the character of the publications issued under your division?

Mr. HILL. Yes, sir.

The CHAIRMAN. With reference to their utility and the demand therefor on the part of the public. Are any of your publications bound in law sheep?

Mr. HILL. No, sir.

The CHAIRMAN. Are those all in pamphlet shape?

Mr. HILL. The great bulk of them are in pamphlet shape. Once in a while we bind one in cloth where it is of a size which necessitates the binding of a few of them for library use. But it is very rare that we bind a whole edition in any form except paper. I would except the Congressional publications, you know, which we do not control.

The CHAIRMAN. Yes; I mean the publications that come out under your division.

Mr. HILL. They are all under my division; they all pass through my division; but the Yearbook, for instance, is one that we have nothing to say about.

The CHAIRMAN. Have you already expressed an opinion as to the durability of the two kinds of binding?

Mr. HILL. No, sir.

The CHAIRMAN. Law sheep and cloth?

Mr. HILL. No, sir.

The CHAIRMAN. Have you had experience so that you have an opinion on that point?

Mr. HILL. I prefer the cloth.

(Witness: Hill.)

The CHAIRMAN. Why?

Mr. HILL. I think it lasts better when it is made of thoroughly good material.

The CHAIRMAN. Assuming that good material is used in each binding, you would say that cloth would last longer than sheep?

Mr. HILL. We prefer the silk cloth, and I think that is the experience of my most experienced men. I think they would concur with me in that. Some librarians claim that buckram is the most durable material for binding yet discovered. Nearly all the binding we have done is for the library of the Department, where cowhide is largely employed. I very much prefer silk cloth for the very few bound publications we have for general distribution.

The CHAIRMAN. Does the printing department send to you quite a list of public documents bound in law sheep?

Mr. HILL. That I could not say, sir. I do not receive those. The library gets those.

The CHAIRMAN. Oh, yes.

Mr. HILL. I only have to do with the publications that we issue.

The CHAIRMAN. Those that go out. You do not have anything to do with the material that comes in?

Mr. HILL. No, sir.

The CHAIRMAN. You are the editor and chief, I understand. How long has this division been in existence?

Mr. HILL. It was established in 1889, practically, as a part of the Bureau of Statistics, which had formerly done most of the publishing work and had charge of it.

The CHAIRMAN. In 1889?

Mr. HILL. In 1889. The first of the following July it was organized as an independent division, known as the Division of Records and Editing; and later on it was increased by the addition of the Illustrations Division, which had formerly been an independent division. That was made a part of the Division of Publications, the name being changed. It was also increased by the addition of another section which had been independent, known as the Folding Room, which had to do with the distribution of documents. These were all gathered into one division in 1895, and it became the Division of Publications, with these accretions.

The CHAIRMAN. In 1895?

Mr. HILL. In 1895.

The CHAIRMAN. You are the editor and chief, and you have an editor and assistant chief, an associate editor, three assistant editors, and two editorial clerks. What is the nature of the work that is done by yourself and these editors?

Mr. HILL. The first, and perhaps the most important part of my work, is to read for the Secretary from his standpoint, from his point of view, to see that nothing is printed which he would not wish to have printed, and that any matter relating to the policy of the Department that is of any consequence is referred to him. That is in addition, of course, to the general duties of editing, which are to see that the matter is clearly expressed and in good English—the general editorial work. But my special work is to be the eyes of the Secretary in this matter.

The CHAIRMAN. Do you originate any publications yourself?

(Witness: Hill.)

Mr. HILL. Very few, sir. We have issued a historical sketch of the Department of Agriculture, and an organization list, and a few circulars and bulletins, and some indexes.

The CHAIRMAN. Those are negligible in quantity?

Mr. HILL. They are negligible in quantity, except the indexes. We are trying to do the indexing of all the publications of the Department, which had been for many years neglected.

The CHAIRMAN. The work that you edit comes to your Department from the other bureaus?

Mr. HILL. From the other bureaus; yes, sir.

The CHAIRMAN. And so you do this work that you speak of—you and your assistants?

Mr. HILL. Yes, sir.

The CHAIRMAN. That is, you have eight persons engaged in that work?

Mr. HILL. I make it seven, I think, sir.

The CHAIRMAN. Well, you have two editorial clerks, three assistant editors—that is five—an associate editor, an editor and assistant chief, and yourself.

Mr. HILL. And myself—yes; excuse me, I had not counted myself.

The CHAIRMAN. I have found in examining these other bureaus, as a rule, that those that have any publications of consequence to issue also have editors, who, so far as I can learn, do just exactly what you are doing—look over the substance, smooth up the rhetoric, eliminate improper matter, and do general editing work.

Mr. HILL. There is less duplication than you would suppose, Mr. Chairman; though there is a possibility of it which should be avoided. In the first place, in the days when very few bureaus issued a very great deal of matter, the chief (who is responsible as well as the author to the Secretary for all the scientific matter) read everything that was submitted. We do not print anything, no matter who the author is, unless it is recommended for publication by the chief of some bureau; and he assumes responsibility for it as far as its scientific worth is concerned. The bureau editor is supposed to read for him; where this work has become so great in volume—as in the case of the Bureau of Animal Industry and the Bureau of Plant Industry, for instance—it is more than the chief can possibly do to read all the bulletins that are submitted for publication; he has a reader who is responsible to him for the same class of work that I am responsible to the Secretary for. That is, he is supposed to understand his chief's views; and he is supposed, by devoting his time entirely to the editorial work of that bureau, to be familiar with the idiosyncrasies of the authors, and especially with the views of his chief.

The CHAIRMAN. Is he not necessarily more familiar with those matters than your editorial people can be?

Mr. HILL. Certainly; that is the purpose of having a bureau editor.

The CHAIRMAN. Why is it necessary to edit the same publication twice?

Mr. HILL. I edit it from the point of view of the Secretary, in regard to the practicalness, the policy, those things for which the Secretary is directly responsible. I take it that the public holds the

(Witness: Hill.)

Secretary only indirectly responsible for scientific statements—indirectly in the sense that he presumably indorses the chief who submits the matter. But in regard to other matters, economic matters, matters of policy and of administration and things of that sort, the Secretary is directly responsible for what he publishes when it goes out with the approval of the Department. It is to that that I pay particular attention. I pay no attention whatever to the scientific matter, except to see that I understand it.

The CHAIRMAN. Do you read everything after these people?

Mr. HILL. My men and myself read everything.

The CHAIRMAN. That is what I mean—your Bureau.

Mr. HILL. Yes; we read everything.

The CHAIRMAN. What is the reason that that is not an obvious duplication of work?

Mr. HILL. They are seeking, or should be seeking, a different purpose than mine. For instance—we will try to put it in more concrete form—we will say that here is a bulletin on leguminous plants and the attraction of nitrogen from the atmosphere. It is submitted to Doctor Galloway by one of his men; he turns it over to his editorial clerk, who reads it solely from Doctor Galloway's point of view.

The CHAIRMAN. What difficulty is there in having that clerk sufficiently intelligent and informed so that he can make a final reading of it, and, when he is reading it, read it once for all?

Mr. HILL. The probabilities are that he would be either not sufficiently good from Doctor Galloway's point of view if he were satisfactory from the point of book making and editorial work, or that he would be essentially Doctor Galloway's man and would fail on some of the practical points. I do not think the Secretary would be satisfied to have anything go through that I did not indorse.

The CHAIRMAN. Suppose you were down there in the Bureau of Plant Industry, and had acquired the necessary knowledge of the Bureau chief's methods and habits and idiosyncrasies: What physical difficulty would there be in your taking a publication and reading it from both points of view at the same time? Suppose you were down there?

Mr. HILL. The difficulty would be that it would take an extraordinarily versatile man to familiarize himself with the work of all the bureaus, and I do not see that you could duplicate me.

The CHAIRMAN. Are these subjects so recondite and abstruse?

Mr. HILL. No, sir; I am more modest than that; but I mean I could not be duplicated—I could not do the work in the Bureau of Soils and the work of the Bureau of Plant Industry and the work of the Bureau of Animal Industry in these different places. We would need a much larger force. In other words, if all the work were done in my Bureau to-day, we would need a much larger force than I have. If we read from the point of view of the bureau editor of the Bureau of Animal Industry and the bureau editor of the Bureau of Plant Industry, and the editorial clerk of the Bureau of Soils—if we read from their point of view and for their chiefs, we could only do so satisfactorily by assigning men almost exclusively to the work of those bureaus. In other words, a good deal of the work that is now done by the bureau editor would be done in my office.

The CHAIRMAN. If it was done in your office, and done by the

(Witness: Hill.)

same man who does the editing now, and he could do both kinds of work at the same time, I can not quite see why you would not save something.

Mr. HILL. I do not think that we would save anything.

The CHAIRMAN. You could if you could eliminate one man by that process.

Mr. HILL. I doubt very much whether we would eliminate a single man if we were to take their work.

The CHAIRMAN. Is it not a fact that all these publications that come out of the various bureaus have their foundation in the views of the chiefs of the bureaus, or the men who write the articles?

Mr. HILL. They have their foundation usually in an investigation.

The CHAIRMAN. Certainly; that is where they originate; but I mean the article itself that is written.

Mr. HILL. The article as it finally reaches us is supposed to express the ideas of the chief of the bureau.

The CHAIRMAN. Yes; and no matter how many editors there are, the chief of the bureau is the man that furnishes the fundamental, substantive facts?

Mr. HILL. Yes.

The CHAIRMAN. About all that these editors have occasion to do is simply to see that the matter is in proper shape, is it not?

Mr. HILL. They have to call the attention of their chiefs to a great many things, I fancy.

The CHAIRMAN. Now, that may all be true—

Mr. HILL. Sometimes some of them escape them, and we have to go back to the chief and say: "Do you really want to express this in this way?" or "Do you want to say this at all?" or "Don't you want to modify this?"

The CHAIRMAN. That is after two men have gone over it, the bureau chief and his editor?

Mr. HILL. The bureau chief, you see, does not go over it.

The CHAIRMAN. He dictates it in the first instance, does he not?

Mr. HILL. No, sir; the bureau chief rarely writes anything.

The CHAIRMAN. We did not get that impression from some of the bureau chiefs. It may not be the bureau chief, I suppose, but the man in charge of the particular investigation.

Mr. HILL. Yes; the author.

The CHAIRMAN. That is, the scientific expert is the author?

Mr. HILL. The expert.

The CHAIRMAN. It may not be the bureau chief, but it may be some scientific expert that his bureau has employed?

Mr. HILL. Yes; he writes it; he prepares it.

The CHAIRMAN. Then the editor examines it?

Mr. HILL. Then the bureau editor examines it and reports to his chief the nature of the bulletin, and all that he thinks his chief ought to know.

The CHAIRMAN. You say that in some instances works prepared in this manner, first dictated by the man who is the expert—

Mr. HILL. Yes.

The CHAIRMAN (continuing). Who knows about the subject, and who has the responsibility—

Mr. HILL. But who is not necessarily a writer, you know.

(Witnesses: Hill; Zappone.)

The CHAIRMAN. Still, he ought to have sufficient intelligence to express himself in the English language with reasonable facility, ought he not?

Mr. HILL. He ought to; he is generally a man of education.

The CHAIRMAN. Is it not almost incredible that a man who is a sufficiently intelligent scientific expert in the work of any of those bureaus to make these investigations, which involve a very large amount of original study on his part and consultation of the authorities, should not have sufficient linguistical capacity to express his ideas in fairly decent English?

Mr. HILL. No, sir; that is not incredible at all. I have been an editor of newspapers and have done some magazine work, and I have been perfectly amazed—I have had cases, actually, where there has been quite a difference of opinion between one of my readers and myself as to what the author meant.

The CHAIRMAN. That is a case of an ambiguous phrase.

Mr. HILL. It was so thoroughly ambiguous; and a great many men who are expert investigators—expert men in the laboratory—have not a great deal of facility in writing, especially for the apprehension of ordinary mortals. They would be understood by their confrères—by scientific men—much more readily than they would by the layman.

The CHAIRMAN. The fact, then, is that while the original investigator, who is an expert in his line, dictates the original article, and then it is afterwards revised by an editor who is supposed to have all these sources of information and supposed to be an expert in the use of language—

Mr. HILL. Yes.

The CHAIRMAN (continuing). That after those men have gone through it, then there are mistakes?

Mr. HILL. Sometimes; but the usual mistake, Mr. Chairman, if you can call it a mistake, is a want of apprehension of what the Secretary would wish to say on the subject under consideration. For instance, suppose the question of colored labor should come up. I am just citing a case at random; I do not say it ever has; but a question might arise in regard to colored labor.

The CHAIRMAN. You do not have anything to do with colored labor, do you, in the Department of Agriculture?

Mr. HILL. We have a great deal to do with colored labor. I am speaking of a bulletin which deals in colored labor.

The CHAIRMAN. I have never run across any labor investigations in my examination of the Department. What branch of the Department investigates labor questions?

Mr. HILL. The Bureau of Statistics has published some articles upon labor questions.

The CHAIRMAN. I did not come across that.

Mr. ZAPPONE. It is more directly bearing on the matter of wages.

Mr. HILL. And the Secretary's idea of what it would be desirable to say in regard to our colored brethren might be very different from that of the chief.

The CHAIRMAN. My impression was that that was confined purely to statistics, simply to fixing rates of wages. I did not suppose that any bureau in the Agricultural Department went out into the general labor question. However, you only use that as an illustration?

(Witnesses: Hill, Zappone.)

Mr. HILL. I am just using that as an illustration. It might be, for instance, in regard to foreign labor; it might be in regard to foreigners and their methods of agriculture. There might be a very sharp criticism made along that line. I remember one case that happened several years ago, where a man went into the matter of labor from southern Europe coming into this country, and denounced it, which was entirely beside the mark.

The CHAIRMAN. You mean a member of the Agricultural Department?

Mr. HILL. Yes. He deplored it. It was only a little while ago that—

The CHAIRMAN. That is, your judgment in that case was that the Secretary did not want to express any opinion on that subject?

Mr. HILL. That he did not want to express himself at least as strongly; but I do not think he wanted to express himself at all on that subject any more than was absolutely necessary for the purpose in hand. In other words, the author had enlarged a little.

The CHAIRMAN. He had gone beyond the scope of the investigation?

Mr. HILL. He had gone beyond the absolute fact—beyond the mere recital of facts, the citation of facts.

Mr. ZAPPONE. Mr. Chairman, may I interject a remark here?

The CHAIRMAN. Yes.

Mr. ZAPPONE. The Chief of the Bureau of Statistics, in his testimony, stated that his Bureau compiled statistics in regard to the wages paid for farm labor. At that time you asked him if that duplicated the work of the Bureau of Labor. He said it did not; and you had before you the Chief of the Bureau of Labor within the next few days.

The CHAIRMAN. And he claimed that there was no duplication.

Mr. ZAPPONE. He claimed that there was no duplication, and that he was willing to cover the field, but that his force, the force at his command, had not enabled him to take up that work.

The CHAIRMAN. That is perfectly true. That simply involves statistics.

Mr. ZAPPONE. Exactly.

The CHAIRMAN. And not labor conditions.

Mr. ZAPPONE. No, sir; the Chief of the Bureau of Statistics will be before you again in a few days and will be able to answer this question personally. It is my understanding that the Department of Agriculture does not look into the statistics of labor in this country at all, except farm labor.

The CHAIRMAN. I do not think we will have occasion to go into that matter any further, because he stated that what he did was done after conference with Doctor Neill, of the Labor Bureau, and it was conceded that it was Doctor Neill's business; but under the circumstances, the Bureau of Statistics of the Department of Agriculture was going on for a while until Doctor Neill was ready to take it up. That is about the size of it.

Mr. ZAPPONE. That is it, sir; precisely.

Mr. HILL. For instance, there is occasionally a chief of a bureau who discusses some matter which leads him into the field covered by another bureau, which involves a reference by me to the chief of the other bureau to see if that is all right.

The CHAIRMAN. What is the reason that a competent man can not eliminate those things—one man, instead of having two men?

Mr. HILL. We edited last year 55,000 printed pages of matter, which means that in the manuscript there were probably 70,000 pages—the equivalent of that.

The CHAIRMAN. That is, your seven or eight men?

Mr. HILL. Yes, sir; and if we were to read for the chief and the Secretary, we would need more men; there is no question of that.

The CHAIRMAN. You read these documents all through for your purpose?

Mr. HILL. All through.

The CHAIRMAN. Otherwise you would not know whether these things were in or out?

Mr. HILL. We read them all through, and we prepare them for the printer. I was going to say another thing—we prepare them for the printer, with the experience that the bureau editors do not have and do not need to have.

The CHAIRMAN. Of course not; but you could bring your same experience to bear on the first reading?

Mr. HILL. We would have to have the man doubly educated; he would have to be educated to the work of that bureau.

The CHAIRMAN. What harm is there in having a man of that character?

Mr. HILL. If you could—

The CHAIRMAN. In your judgment, is it impracticable?

Mr. HILL. I do not think it is a very practicable thing, sir. I thing that Mr. Pickens, for instance, the editor of the Bureau of Animal Industry, has advantages that none of my men could have by reason of his long service in the Bureau of Animal Industry.

Mr. ZAPPONE. Do not some of these bureau editors also do a large amount of miscellaneous work in connection with the duties of their bureaus? In other words, is their work confined exclusively to editing?

Mr. HILL. No; I think they look after a great deal of abstracting.

Mr. ZAPPONE. Notably in the Office of Experiment Stations; the editor there is also a scientific man.

Mr. HILL. They do a large amount of scientific abstracting.

The CHAIRMAN. This Mr. Pickens that you refer to—

Mr. HILL. Mr. Zappone was speaking of the Office of Experiment Stations. This Mr. Pickens is the Bureau editor of the Bureau of Animal Industry. He has had a long service in the Bureau.

The CHAIRMAN. He is thoroughly familiar with that subject?

Mr. HILL. He is thoroughly familiar with the subject. He is thoroughly familiar with the policy of his Bureau.

The CHAIRMAN. Is he equally familiar with the policy of the Secretary of Agriculture?

Mr. HILL. No; by no means, because he has not been brought into immediate consultation with the Secretary of Agriculture as I have been.

The CHAIRMAN. How long would it take a man now to familiarize himself with the policy of the Secretary of Agriculture?

Mr. HILL. During the first year of every Secretary's incumbency I have to bother him a great deal. I have to learn his views; I have

(Witness: Hill.)

to learn what his policy is going to be. He formulates it slowly himself if he is a prudent man. A good deal of the first year elapses before he makes up his mind on a good many questions of administration. For instance, a bureau chief in one of his publications will advocate a certain policy for the Department to follow administratively. He will say that he thinks it is the duty of the Department to do thus and so. That is a case where I would stop him. I would go over that with the very greatest care, and I might very possibly differ with him and say: "I do not believe the Secretary would like you to put that in that way. I do not think the Secretary is prepared to adopt this policy as a part of the policy of the Department."

The CHAIRMAN. Are you the only man connected with your Bureau that gets into personal contact with the Secretary for the purpose of familiarizing yourself with his ideas?

Mr. HILL. My first assistant does so when I am not there.

The CHAIRMAN. Then you two are the only men?

Mr. HILL. We two are the only men who come in personal contact with the Secretary.

The CHAIRMAN. You two are not able to do all this work, are you?

Mr. HILL. Yes, sir; in the way we do it.

The CHAIRMAN. How do you do it?

Mr. HILL. My men thoroughly understand, by training under a competent chief, who is the associate editor next after my first assistant, and who is what might be called "chief of the editorial division"—a man who has been with me a great many years—that they are to bring everything to my attention about which there may be the slightest doubt, and everything that relates to policy or administration, whether they approve it or whether they think the Secretary will approve it or not. I can not read all the things, but the process is this:

A bulletin is submitted by a chief of bureau, and it goes to the editorial department, where it is docketed and marked and its receipt is recorded. Then it is given to a reader, one of these assistant editors, who is very often selected according to his special qualifications for the class of work under consideration. For instance, if the matter involved is very considerably tabular matter and is pretty complicated in the matter of making up for the printer, there is one man that we would choose. My mind reverts at once to one man that I would give that kind of work to. Another bulletin I would give to another man, according to its style and subject-matter.

The assistant editor reads that manuscript and takes his paper and writes: "Folio 19, see query." He queries a paragraph for my attention. He gets to folio 26 without noting anything more. Then he says: "See alteration." He makes an alteration which he thinks makes the meaning more clear. He goes in that way through the whole manuscript. He will bring it to me sometimes with eight or ten references and sometimes with forty or fifty references.

The CHAIRMAN. And many times with none?

Mr. HILL. Very seldom with none—very seldom. There is almost always something to be queried. Then, before it gets to me, perhaps it will go through the hands of Mr. Stallings, the Chief of the Editorial Division, or my first assistant. They will eliminate some things that in their larger and longer experience they think there is

(Witness: Hill.)

no use bothering me about, and so on; and we will say that, beginning with thirty references, it gets to me with twenty. I will eliminate eight or ten or twelve more, and the burden will fall upon these seven or eight cases in which I think an alteration or elimination or modification of some kind is absolutely necessary. Then we go to the chief of the bureau, and he says: "Well, all right; see the author about it."

The CHAIRMAN. You refer to the chief of the bureau from which the publication came?

Mr. HILL. The chief of the bureau from which the manuscript came. He will either take up the matter himself and say, "Yes; I think you are perfectly right about that," or he will say, "I doubt that; I think you had better see the author about that;" and we have conferences in that way with the author and with the chief. Sometimes it only takes a conference with the bureau editor. We point out to the bureau editor some things that can not go through in their present form, and he may accede to our suggestion. Another time he may say: "I will have to see Doctor Galloway," or "I will have to see Doctor Melvin," or "I will have to see this one or that one in regard to it before we consent to these changes." Sometimes there is a conflict and we have to go to the advisory committee of the publication committee or to the Secretary. Occasionally a bulletin is held up entirely.

The CHAIRMAN. What is the average size of these bulletins?

Mr. HILL. The average size in printed pages will perhaps be from 60 to 75 pages. Of course the Yearbook is a different thing.

The CHAIRMAN. Oh, yes; that is another proposition.

Mr. HILL. And the annual reports.

The CHAIRMAN. Do you edit the Yearbooks and the annual reports?

Mr. HILL. Yes, sir.

The CHAIRMAN. How many errors do you say you not infrequently find in one of those bulletins of 60 or 70 pages?

Mr. HILL. Well, I would not describe them as errors.

The CHAIRMAN. How many things that require correction in your judgment or in the judgment of these other men?

Mr. HILL. Sometimes from three or four to a dozen.

The CHAIRMAN. I thought you said about thirty a little while ago.

Mr. HILL. I said thirty, but many of them would be eliminated by the process I speak of.

The CHAIRMAN. That is what I mean. How many things that require alteration is it frequent or usual for your readers to find in a bulletin of that sort on the first reading under your department—three or four, thirty or forty, eight or ten?

Mr. HILL. The first reader, you know, reads without reference to whether it requires correction or not. There are certain subjects that he calls my attention to anyhow.

The CHAIRMAN. Who digs up these thirty that you use for illustration?

Mr. HILL. The first reader.

The CHAIRMAN. Very well. Now, about how many errors have you known that first reader to find?

(Witness: Hill.)

MR. HILL. By the time it reaches me and gets through my hands the 30 will be reduced to 5, 6, 7, or 8 cases.

THE CHAIRMAN. That is not the question at all. The question is, How many errors have you known that first reader to find in a bulletin that came from some bureau in the Department of Agriculture? Have you known him to find 10, or 30, or 40, or 50, or how many?

MR. HILL. Very rarely more than 7 or 8; sometimes 3 or 4.

THE CHAIRMAN. Do you sometimes find 30?

MR. HILL. I sometimes find 30 references; I very seldom have found 30. If I found 30 errors it would probably result in a report adverse to the publication of the bulletin altogether.

THE CHAIRMAN. I do not mean errors in the sense of their being wrong; I mean in the sense of alterations—that is, you gave an illustration a few minutes ago of your first reader's finding, say, 30 things that he would query.

MR. HILL. That he would query; yes.

THE CHAIRMAN. Yes; that he would query. Now, what I want to know is how many of those do they frequently find in the bulletins that come into your division from these various bureaus?

MR. HILL. They will frequently find occasion to query a score of the statements, perhaps.

THE CHAIRMAN. Yes. Now, at any stage of your reading do you go to the substance, or only to the form?

MR. HILL. We go to the form of all of it and to the substance of that part of it which relates to things not directly technical or scientific. What is technical and scientific we leave to the chief of the bureau and his editor, his bureau editor. We take it that they have the thing scientifically as they want it, but we go to the form of that part and of the entire bulletin.

THE CHAIRMAN. How often do you have a bulletin that you can allow to go through and that your editors allow to go through without revision or alteration? Does that ever happen?

MR. HILL. Yes, sir.

THE CHAIRMAN. About how often, would you say, are the articles that you get from these bureaus accurate and complete enough so that they can go right through without any change?

MR. HILL. Perhaps 40 per cent of them.

THE CHAIRMAN. That gives us a very good idea. So that there is 40 per cent of the material that your first reader passes through as to accuracy.

MR. HILL. I will not say that the first reader passes it through, sir; because his instructions are to call my attention to matters of a certain description whether they go through or not. For instance, if any reference is made to the policy of the Department, he calls my attention to it whether it is correct or otherwise.

THE CHAIRMAN. I suppose it is a fact that there are bulletins that do not make any reference to the policy of the Department?

MR. HILL. Yes, sir; there are some of them.

THE CHAIRMAN. Your idea is that about 40 per cent of all the bulletins are passed by the first reader without suggesting any alterations?

MR. HILL. Without suggesting alterations; yes, sir.

(Witness: Hill.)

The CHAIRMAN. Yes. So that as to 40 per cent of the bulletins you really only get the judgment of, say, an editorial clerk or an assistant editor. If matter has gone out in those 40 that really comes within this category, you would not know it, except as you rely on the judgment of this associate editor?

Mr. HILL. I trust to their judgment to call my attention to anything I ought to see.

The CHAIRMAN. Yes; but if nothing appeals to him, he passes it by?

Mr. HILL. He passes it by.

The CHAIRMAN. And 40 per cent of it goes by without any suggestion of alteration?

Mr. HILL. Yes. I think it is due to these gentlemen, in that connection, to say that I do not think that in the sixteen or seventeen years I have been there, there have been more than half a dozen cases where something has gotten by that ought not to have gotten by.

The CHAIRMAN. Oh, I assume that they are competent men.

Mr. HILL. They are very, very, painstaking.

The CHAIRMAN. This does not militate against their efficiency at all. I simply want to get the facts.

Mr. HILL. I simply did not want to go on record without saying a word for them.

The CHAIRMAN. Oh, that is proper.

Mr. HILL. Take such a question, for instance, as advertising, Mr. Chairman. Without any thought of doing anything improper, an author will bring in an advertisement of some machine, some implement, some process, which it is not the policy of the Department to permit in a publication of the Government, paid for with the public funds, and distributed under a frank. That is such a thing as will occasionally slip through to our office.

The CHAIRMAN. You mean by "advertisement" that you do not care to have anything go out in a bulletin that directs attention to a specific thing that somebody manufactures?

Mr. HILL. Exactly. Occasionally it is unavoidable; but generally we do not put in the name of the manufacturer and the place where it is manufactured.

The CHAIRMAN. You describe it as a process, and not as a particular article?

Mr. HILL. Not in the concrete. Then, my men are especially well informed in the matter of the making of books.

The CHAIRMAN. What do you mean by that—binding them up?

Mr. HILL. In the question of binding and in the question of preparing matter for the printer. When I first went there, I found that all of our matter, on its arrival at the Public Printer's, was turned into the proof-reading room and prepared for the compositors. Now we do all that. We save all that in my office, because the men I employ are sufficiently experienced in that line to save that work, and when the copy goes to the printer it is fit to be put into "takes" and distributed to the different compositors directly.

The CHAIRMAN. Yes; it is completed copy?

Mr. HILL. It is completed copy, prepared in every respect, so that

(Witness: Hill.)

the last "take" will be set in the same style as the first "take," without any further instructions. That was not the case when I first took hold.

The CHAIRMAN. What did they do? Have somebody else do that work?

Mr. HILL. That was done in the Government Printing Office, and that frequently led to consultations, going back and forth. I think we have saved a great deal of work by having that all done by us. We know the Public Printer's style; we know all the things that he regards as essential, and within those limits we use our own discretion as to style and uniformity.

The CHAIRMAN. Do you read proof in your division?

Mr. HILL. We read the proof; yes. We read the proof once, but not by copy. It is read by copy at the Public Printer's.

The CHAIRMAN. Do you read a proof that is struck off by the Printing Office?

Mr. HILL. Yes.

The CHAIRMAN. Does it come back to you for that purpose?

Mr. HILL. Yes; it comes back to us for that purpose.

The CHAIRMAN. That is, the manuscript goes down to the Printing Office, it is set up, and an impression or two taken, as the case may be?

Mr. HILL. Yes.

The CHAIRMAN. And that proof impression comes back to your office, and you take that with the original manuscript and read the proof and make the necessary printer's corrections?

Mr. HILL. We do not read it by copy, as I say. We do not have a copyholder, one man holding a manuscript and the other man reading proof. That is done at the Public Printer's, and we trust to them for that. But the copy comes back, and we generally send the copy and one of these proofs to the author, while we read the other proof.

The CHAIRMAN. That is what you call, I suppose, the "final revise?"

Mr. HILL. We make a final revise; yes, sir.

The CHAIRMAN. That is what you get.

Mr. HILL. And then the author almost always finds something that he wants to alter. That is one of the things that I am there for—to keep a man from editing his stuff after he gets it in the proof, because that is very expensive work, and we check that in every way. Still, there will occasionally be some little corrections that are necessary, and they come to us, and we transfer them to our proof and send it back to the Public Printer and retain the author's proof as evidence of the changes that he requested.

The CHAIRMAN. Has there been any increase in the personnel of your office during the last ten years?

Mr. HILL. Yes, sir. Do you mean the editorial force strictly?

The CHAIRMAN. No; I mean the personnel of the whole Bureau.

Mr. HILL. Yes, sir; there has been considerable increase.

The CHAIRMAN. What is the kind of work which has occasioned the increase?

Mr. HILL. The distribution of documents has doubled in the last ten years.

(Witness: Hill.)

The CHAIRMAN. What sort of work is done in your Bureau, except this editorial and supervisory work, which in one way covers all the publications? What other work do you do?

Mr. HILL. We have a division of illustrations, which is a subdivision or a section, I suppose you would call it, of our division.

The CHAIRMAN. What is the character of that division? What sort of work do they do? Do they make original pictures?

Mr. HILL. They have draftsmen, and make original pictures, make copies, and do the photographing work, of which we do a very large amount.

The CHAIRMAN. It has been suggested that quite a good many of the Government publications are more than profusely illustrated; that some cuts are practically duplicates of others, and that some cuts are published in the books that really do not tend to illuminate the text, and sometimes present a common subject with which everybody must be entirely familiar. Who has the power, down there in your Bureau, to bring these illustrations right down to "hard pan," so that no more of them are published than are really necessary?

Mr. HILL. I do. That is part of my business. The tendency is just as you relate. The tendency of an author is generally to over-illustrate, and there is a "hetcheling" process that goes on. The Bureau editors and the chiefs generally throw out some of the illustrations, and they have to come to me with a letter, which we require the chief to sign, stating that he has personally looked into these illustrations and believes them to be necessary to the proper apprehension of the text by the reader. But even then we go over them, and very frequently send them back to him and ask him to take out three or four more—those that do not seem to us to be necessary.

The CHAIRMAN. Do the men that prepare these articles have unlimited authority and discretion to skirmish around and get illustrations that seem to them to be wise and necessary and practical, without limit except their own discretion, to employ a draftsman to do this work, and then perhaps get an accumulation of illustrations, so that you have to weed out a pretty good percentage of the illustrations thus obtained?

Mr. HILL. A great many of them are illustrations that are needed in their work.

The CHAIRMAN. But I am not discussing that question.

Mr. HILL. But not for illustration.

The CHAIRMAN. Do these men that do the original work, that write the original articles, giving the results of the scientific investigation, have unlimited authority to get up such illustrations as they think they want?

Mr. HILL. You can not call it "unlimited," because they have to act under the direction of their chief.

The CHAIRMAN. Is it a fact, then, that they confer with him right along from time to time as to whether they shall have this or that illustration?

Mr. HILL. So far as I know, they do, because they have to send a requisition to us, if we do the work of illustration, which necessitates some consultation before it reaches us, and if the bureau employs its own illustrator and artist he generally has his hands full and does not care to undertake anything unless there is a necessity

(Witness: Hill.)

for it. I fancy that the result is that there is a consultation before there is very much illustrating done. But as it is, a great many of the illustrations are needed—for instance, in the case of the pomologists, an enormous number of illustrations are filed among their papers and indexed for reference that are not used in publications. The President himself called attention to overillustration in a letter which he addressed to the Secretary some three or four years ago.

The CHAIRMAN. To overillustration?

Mr. HILL. To overillustration. It had reached an unfortunate extent, there is no doubt of it, and it was one of the things I made myself extremely unpopular with these men about—checking these illustrations. Fortunately, the letter of the President helped very materially, because, by the Secretary's instructions, we sent a copy of it to all these bureaus and told them that there had got to be a "new deal;" that they had got to be more conservative in the matter of illustrations. And the result, Mr. Chairman, has been that in two years' time, while the publication work increased 10 per cent a year, the illustrations have been reduced 10 per cent each year. With all the additional printing we are doing over what we were doing three or four years ago, we are doing from 20 to 25 per cent less illustrating.

The CHAIRMAN. Outside of the editorial supervision of the manuscript and the censorship of the illustrations—that, I suppose, is not too strong a word to use—what else does this Bureau of yours do?

Mr. HILL. We organized an indexing section about a year and a half ago.

The CHAIRMAN. For indexing what?

Mr. HILL. For indexing the publications of the Department, which had remained unindexed for a long time. I have been trying for a long time to get help enough to do that work.

The CHAIRMAN. Do you mean indexing the publications of the Department?

Mr. HILL. Yes.

The CHAIRMAN. Are those publications in the library?

Mr. HILL. They are all in the library, of course; but we have a set, besides, in our division.

The CHAIRMAN. Then your indexing is simply confined to the set that is in your charge?

Mr. HILL. Yes; to the complete set. I am trying to get to a point where there will be an index to everything the Department has ever published.

The CHAIRMAN. We were told by the librarian here the other day that she had all the indexing of that library, which includes this material which you speak of, completed and up to date within a year or two. Of course that must include these same publications, if they are in that library.

Mr. HILL. They are not indexed as we are indexing—not in anything like the detail, as I understand it. There is an index to the general subject-matter, but ours is a detailed index.

The CHAIRMAN. She has a subindex, so she told us.

Mr. HILL. We have not been able to find that she had an index in the detailed form in which we are trying to make it.

The CHAIRMAN. Have you ever examined her index?

(Witness: Hill.)

Mr. HILL. Two or three of my men have looked it up.

The CHAIRMAN. When?

Mr. HILL. Within the past two years.

The CHAIRMAN. Why could you not take that index of hers, if it is not sufficient in detail, and use it as the foundation of a more detailed and elaborate index, and thus save work?

Mr. HILL. Hers is made, as I understand it, on a totally different basis from ours.

The CHAIRMAN. You have never looked it up yourself?

Mr. HILL. I have never looked it up myself.

The CHAIRMAN. How far along have you gotten in it? You have been working on it about a year, you say?

Mr. HILL. About a year. I have not had help enough.

The CHAIRMAN. How near through are you?

Mr. HILL. We are indexing everything as it comes in, and that work is practically up to date.

The CHAIRMAN. That is current work?

Mr. HILL. That is current work. At the same time we are working backward.

The CHAIRMAN. How near have you got your publications indexed?

Mr. HILL. I think we have something like twelve or thirteen thousand entries.

The CHAIRMAN. But what percentage of the accumulation does that index? Have you any idea?

Mr. HILL. Oh, I think it can not be more than a fourth of it. That is a very vague estimate.

The CHAIRMAN. Oh, certainly; that is an approximation.

Mr. HILL. Yes.

The CHAIRMAN. Now, as we understand it, the index, which is a card index—that is the kind you are making, I suppose?

Mr. HILL. Yes, sir.

The CHAIRMAN. As we understand it, there is a complete card index—just how detailed I do not know, because we do not examine into that in detail—but there is a complete card index of all that material in the library of the Department. Would it not be a good idea for you to examine that yourself, carefully, and see whether it does not furnish a basis for saving a good deal of work?

Mr. HILL. Yes; I think it would. It is the first I have heard of the existence of a complete index. I thought there was a sort of index catalogue of all the publications of the Department, but as I understood it, the matter in the publications was not indexed.

The CHAIRMAN. We may be in error about that, but I think it would be a good idea for you to confer with her.

Mr. HILL. I think it would; yes.

The CHAIRMAN. Of course if the work that she has already done, which has cost a large sum of money, while not going sufficiently into detail, would furnish a foundation, there is no reason why you should not take that and build on it.

Mr. HILL. Yes, sir; that is right.

The CHAIRMAN. You will do that, will you?

Mr. HILL. Yes, indeed.

(Witness: Hill.)

The CHAIRMAN. Now, what else besides indexing and the other work you have mentioned does your Division do?

Mr. HILL. Then there is the distribution of documents. We housed and sorted and redistributed something like 13,000,000 copies last year.

The CHAIRMAN. That is the mailing?

Mr. HILL. That is the mailing. The Members of Congress got nearly 6,000,000 farmers' bulletins from us.

The CHAIRMAN. Are all these people that you have on your list of expenditures, pages 254 and 255, except the editorial workers and the indexers, engaged in that distribution?

Mr. HILL. I also have my bookkeepers. I have a very considerable office, and of course I have to keep accounts of the printing fund.

The CHAIRMAN. Yes.

Mr. HILL. In addition to the lump fund, which I keep in a measure. Mr. Zappone knows just what proportion of that belongs to the division, what is expected of them, and what is done in his own office. But I keep an account myself of the amount expended from the printing fund that is appropriated to the Public Printer for our use.

The CHAIRMAN. That is to say, the work done by the Printing Office in printing your publications?

Mr. HILL. Yes, sir.

The CHAIRMAN. And charged to your Department?

Mr. HILL. And charged to the printing fund of the Department.

The CHAIRMAN. And you keep an account of that and the material sent out?

Mr. HILL. I keep a ledger account with every bureau, so as to see just what each bureau is spending, what the printing of each bureau is costing, and then I keep an account with the Public Printer.

The CHAIRMAN. And are you able, by that account, to determine the public utility of various bulletins and the demand therefor, indicating whether there should be a large or a small edition, or a continuation of publication?

Mr. HILL. I do not base that so much on the amount. My sole effort in limiting the amount is to be as careful and as economical as possible, to spend as little as possible. But when it comes to the question of the edition, I have each chief, when he presents a manuscript for publication, present also a scheme of distribution, showing what he wants to do with it, how he wants it distributed and to whom. We make up a scheme of distribution together, and then we allow a few hundred for miscellaneous demands, and we limit the editions of their publications in that way. The Public Printer keeps the plates for a certain length of time, so that in case of necessity, if there should be a run on a publication greater than was contemplated when it was issued, it is a very easy and simple thing to get a reprint. But lately we have been referring a great many of the applicants for the more technical bulletins of the Department to the superintendent of documents, who keeps them for sale. Of course we continue to distribute free the farmers' bulletins and circulars.

The CHAIRMAN. Where is the office of the superintendent of documents?

Mr. HILL. In the Government Printing Office.

(Witness: Hill.)

The CHAIRMAN. Oh, yes; he has charge there?

Mr. HILL. He has charge of that, and the printing law says that all surplus publications in our hands shall be turned over to him.

The CHAIRMAN. And under that you have practically no accumulations now?

Mr. HILL. We have comparatively few accumulations. There are sometimes a few that he is not able to receive. Until lately he was not able to receive them; he had no place to put them.

The CHAIRMAN. How much storage capacity do you have to have for those that he is not able to take care of?

Mr. HILL. The accumulation would go into a couple of rooms of this size—less than that.

The CHAIRMAN. And that is practically continuous?

Mr. HILL. But of course there is a great deal more room required for the handling—for the coming in of new matter and its outgo.

The CHAIRMAN. Is there anything else besides the distribution of public documents and your bookkeeping?

Mr. HILL. No, sir.

The CHAIRMAN. That covers the whole ground?

Mr. HILL. When I tried to induce our committee to make the division a bureau, because it had outgrown its division formation, I submitted a scheme which contemplated four divisions—an editorial division, an illustration division, an indexing division, and a distribution division.

The CHAIRMAN. Why is it that you can not accomplish all these results in the division form of organization as well as in the bureau form?

Mr. HILL. We are doing it, as a matter of fact.

The CHAIRMAN. Certainly.

Mr. HILL. But I do not think we are doing it quite as well. I think that the men who have the responsibility of division chiefs ought to have the pay and emoluments and the standing of division chiefs.

The CHAIRMAN. The point about it, then, is that under the existing conditions they do not get the compensation they would get under the bureau form of organization?

Mr. HILL. I do not think they do, and I do not think they get enough.

The CHAIRMAN. Does not the Government get just as much service now as it would then?

Mr. HILL. Yes; I suppose it does.

The CHAIRMAN. Then it would simply cost the Government so much more to go into a bureau form of organization, and it would get no more results?

Mr. HILL. But I think it is only fair that a man should be adequately paid for his work; that "the laborer is worthy of his hire." I think that a man who attains a certain degree of competence and assumes a certain degree of responsibility, or has it put upon him, ought to be paid accordingly.

The CHAIRMAN. We agree with you on that, but is it not the better way to take up that proposition and determine it on the basis of the value of the services he renders, rather than to go into the form

(Witness: Hill.)

of bureau organization, and indirectly get the result that ought to be obtained directly?

Mr. HILL. I have tried to obtain it directly as well, Mr. Chairman.

The CHAIRMAN. Very true, but is not that the better way? Then we will know exactly what we are doing.

Mr. HILL. But I think it would be a help to me in performing the duties that I have—it certainly would be a help to me if I were a bureau chief dealing with bureau chiefs instead of a division chief dealing with bureau chiefs. It may be absurd, but there is a good deal of the hierarchal feeling.

The CHAIRMAN. To a certain extent not exactly, but parallel to, the matter of uniform?

Mr. HILL. A little; not exactly. The man with three stars does not like to be checked by the man with two stars.

The CHAIRMAN. That may be natural, although not laudable.

Mr. HILL. It is natural; yes. I do not know that it is laudable, but I merely referred to that as showing that I cover the work.

The CHAIRMAN. Yes; I am very glad to get your views, because we have had one or two changes from divisions to bureaus, and while I do not express any opinion now as to the situation, I will say that apparently the increase of salaries was the most obvious element involved in the change.

Mr. HILL. I feel just this way, sir: That our regiment has become a brigade, and that it ought to be brigaded. We employ from 160 to 165 people. We have an appropriation, apart from the printing fund (which is entirely under my charge), in the new bill of \$180,000 or thereabouts. I can not remember now; they have taken the Farmers' Bulletin and put it into the printing fund, but we have a printing fund of \$460,000 that we have to administer, and I am perfectly free to say that I think it would be easier to get the pay that is commensurate with the services of my principal men, the men upon whom I depend largely, and who enable me to perform the work as satisfactorily as I trust I am doing it, if they were chiefs of divisions in a bureau than as subordinates of a chief of division themselves. I did not ask for any increase of pay for myself when I asked them to make my Division a bureau. I left that to the Secretary.

The CHAIRMAN. Perhaps you might have inferred that that would naturally come.

Mr. HILL. I am perfectly honest when I say that I did not think about that. I wanted to get my Division put upon the plane where I thought it belonged. I feel just like a boy that has grown too big for short pants, and still is wearing short pants.

The CHAIRMAN. Yes. In other words, you take pride in your work, and you want to get it up on at least the same sentimental level or departmental level that other people occupy. That is a laudable ambition.

Mr. HILL. And I would be very grateful to be able to do better for these splendid fellows that I have, for I have as fine a force of men as there is to be found anywhere—a first-class force; fellows who do extra work and never grumble, and who sacrifice their leaves and never grumble, and who have intelligence, and who have common sense, which is very necessary in editing work, and who have lots

(Witnesses: Hill, Zappone.)

of tact, which is very necessary in dealing with scientific men, and who have a thorough experience with and knowledge of bookmaking.

The CHAIRMAN. You spent about \$140,000 during this last fiscal year. How much of that was spent, roughly speaking, in simply distributing these publications? That is, what percentage of it, should you say?

Mr. HILL. I think there are about 120 people engaged in the distribution, and that their salaries will average something like \$720 to \$800.

The CHAIRMAN. No; I mean the proportion of your whole expenditure that is involved.

Mr. HILL. I am trying to get at it in that way.

The CHAIRMAN. Oh, yes; I see.

Mr. HILL. I should put it at about \$90,000.

(At this point Mr. Samuel took the chair as acting chairman.)

Mr. ZAPPONE. Mr. Chairman, I would like to correct the record in regard to the total amount of the appropriations for the Division of Publications. The total amount was \$246,620, and the total expenditures during the fiscal year 1906 were \$244,628.02, leaving a balance to be turned back into the Treasury of \$1,991.98.

Mr. HILL. That is the total?

Mr. ZAPPONE. That is the total. That covers the statutory salaries and all expenses outside of the fund that the Public Printer controls.

Mr. HILL. And that includes the Farmers' Bulletins?

Mr. ZAPPONE. And that includes the Farmers' Bulletins; yes, sir. Everything that you have supervision of is included, except the fund controlled by the Public Printer.

Mr. HILL. Yes.

Mr. ZAPPONE. And appropriated to his Office.

Mr. HILL. For our use.

Mr. ZAPPONE. For your use.

The ACTING CHAIRMAN. Approximately speaking, how much of an increase in the expense of your Division would occur if it was changed from a division into a bureau?

Mr. HILL. On the basis of last year, it would probably involve an additional expense of about \$15,000.

The ACTING CHAIRMAN. That would only affect the salaries of some of the higher officials?

Mr. HILL. That is all.

The ACTING CHAIRMAN. Would it increase the force necessarily?

Mr. HILL. No, sir. We will need a little increase of force anyway, and the committee have agreed to give it to me in their present bill; and it would not involve more than two or three thousand dollars more than they have agreed to give me.

The ACTING CHAIRMAN. It would not necessarily increase the force?

Mr. HILL. It would not increase the force at all.

The ACTING CHAIRMAN. Would it affect the efficiency of the force materially?

Mr. HILL. I think everything that tends to build up the bureau and to afford fair remuneration to the most responsible men is helpful toward efficiency.

(Witnesses: Hill, Zappone.)

The ACTING CHAIRMAN. In what way?

Mr. HILL. I think it brings about a more universal effort. I hesitate in saying that, because they are such good fellows, anyway; they are doing their very best. But I think a horse does better if he has his oats, although he may be a very willing horse and be doing pretty well without quite sufficient rations.

The ACTING CHAIRMAN. Then you think that the men do not receive sufficient salaries?

Mr. HILL. My most responsible men do not; no, sir.

The ACTING CHAIRMAN. You are in no position to advance their salaries?

Mr. HILL. No, sir.

The ACTING CHAIRMAN. Under a division?

Mr. HILL. That is, I think that it would be easier to get slightly better salaries for them if they were themselves division chiefs.

The ACTING CHAIRMAN. In what way would they get better salaries?

Mr. HILL. The average salaries paid to division chiefs are higher than the salaries paid to them now.

The ACTING CHAIRMAN. There is no provision in the division organization for giving those same salaries even for performing the same work?

Mr. HILL. No; it is difficult to get. It is easier to get a better salary for an officer than it is for a clerk.

The ACTING CHAIRMAN. If you were made a bureau would it change the positions of those men from clerks to officers?

Mr. HILL. Yes; they are practically officers, but it would confirm them as officers.

The ACTING CHAIRMAN. It would not change the character of the work they perform?

Mr. HILL. It would not change the character of the work they perform.

The ACTING CHAIRMAN. But they would not have any more to perform, would they?

Mr. HILL. Nor any more to perform. If we need extra help we need it, whether it is as a division or a bureau. We have to do the work.

The ACTING CHAIRMAN. Is there anything in the laws that favors bureaus in preference to divisions?

Mr. HILL. Not to my knowledge; no, sir.

Mr. ZAPPONE. The law favors it when the organization is large—that is, when the office is large and should be broken up into divisions for better administrative purposes. I think that is the way that that originally started in the Department of Agriculture. The first large office, now the Bureau of Animal Industry, was made a bureau for the purpose of better administration of that office. It was necessary to divide the work into divisions. That was followed by the Weather Bureau, which in that case was transferred to the Agricultural Department from the War Department. It had a bureau organization when it was transferred. It was then believed that the bureau formation or organization for the entire Department would result in benefit to the Department in an administrative way. The work in those two bureaus was so efficiently done that there was every reason

(Witnesses: Hill, Zappone.)

to feel that the bureau organization was the logical organization for a scientific department like the Department of Agriculture; and as the other divisions grew in importance they were gradually made bureaus by Congress. It is the hope, and I might say the wish, of the Department of Agriculture that ultimately it will be a department of bureaus, so that instead of having a great many division chiefs reporting to the Secretary and taking up much of his valuable time, which is needed for other lines of work, he will only have to deal with bureau chiefs; and naturally they will be limited in number.

Mr. HILL. It has made a great deal of difference in his work already, as far as it has gone.

Mr. ZAPPONE. That is true. It has made a great difference.

Mr. HILL. He used to have something like twenty-six or twenty-eight people going to him constantly.

Mr. ZAPPONE. And it has centralized the authority under a few heads, instead of having so many employees acting independently, and coming for instructions to the Secretary's office.

Mr. HILL. If I may be allowed to use an illustration, it would be like asking a lieutenant-general to conduct the affairs of a great army division or of any army corps with no brigadiers or majors-general between himself and the colonels—having to deal directly with the colonels, all of whom would report to him.

The ACTING CHAIRMAN. There is no one in your division who is compelled to see the Secretary except yourself, is there?

Mr. HILL. No; the division chief is usually—

The ACTING CHAIRMAN. So it would not change that relationship in your division?

Mr. HILL. It would not change it in that particular case.

The ACTING CHAIRMAN. It would be rather more a matter of dignity and increase of salary than anything else, would it not?

Mr. HILL. Well, you always do work better if you have a machine adapted to it.

The ACTING CHAIRMAN. Yes.

Mr. HILL. Although you can very often accomplish the work with a machine not as well adapted to it.

The ACTING CHAIRMAN. Yes.

Mr. HILL. But it involves more friction and more effort. My feeling is that in the number of persons employed, in the responsibilities assumed or devolving upon me, and the amount of expenditures which the division controls, I am doing a bureau's work, and these men, my four or five principal lieutenants, are doing the work of chiefs of division, and that the machinery of a bureau would be better adapted to my present necessities. When I began this work I began with a force of three people, all told. Two independent divisions have since been merged into my division—one the folding room and one the division of illustrations; but we have always remained a division, and these former divisions have been lowered to the grade of sections of a division.

The ACTING CHAIRMAN. In other words, you feel as if you ought to be placed on a level with others who are not doing any more work than you?

(Witnesses: Hill, Zappone.)

Mr. HILL. Or more responsible work.

The ACTING CHAIRMAN. Yes; or more responsible work.

Mr. HILL. Exactly; that is about the idea.

The ACTING CHAIRMAN. I do not know but what that is right, too.

Mr. ZAPPONE. Mr. Chairman, if you have finished discussing that particular subject, I would like to return to the subject of editors in the other bureaus, and ask Mr. Hill to answer the question I put to him while that matter was under discussion, as it will clear up the record to some extent.

The question I asked was whether it is not true that some of the editors in one or two of the different bureaus, in addition to their editorial functions, perform scientific work, or duties of a miscellaneous or occasional character in no way related to or connected with editing—notably in the Office of Experiment Stations, which I named at that time. For instance, there is a Mr. Beal, chief of the division of editing in that office. He is the gentleman that Doctor True referred to as assisting him in examining the financial accounts of the various State experiment stations all over the country. They divide up in a way on this inspection work. I think that possibly in another bureau the conditions are the same, but I am not sufficiently familiar with it to make a statement, and I would therefore like Mr. Hill to tell us about that.

Mr. HILL. It would be a little difficult for me to answer that question.

Mr. ZAPPONE. In a general way, if you please.

Mr. HILL. My impression is that there is a good deal of work devolving upon these gentlemen, assigned to them by the chief, which is apart from the actual editing. At the same time, the intention in the appointment of these men was that while being paid by the Bureau where they were employed, they should be regarded as my men, helping me in my work. They are supposed to study the character of our work, and to assist us by bringing their bulletins as far as possible into line with our requirements before we get them.

The ACTING CHAIRMAN. By your direction, or by their chief's direction?

Mr. HILL. It ought to be by my direction; and some of them do that. I can think of one man now that always comes to us, when he is in any quandary, for us to decide on everything except those few things that relate particularly to his chief's views.

Mr. ZAPPONE. Take the case of Mr. Beal: Have you not knowledge of the fact that he is a scientific investigator, and assists Doctor True on this experiment-station work?

Mr. HILL. Oh, yes; you might call him an inspector of stations to a certain extent.

Mr. ZAPPONE. That is what I wished you to say, Mr. Hill, because I know it to be the fact that he is a scientific investigator.

Mr. HILL. I have understood that both Doctor Allen and Mr. Beal, particularly, do a great deal of that work.

Mr. ZAPPONE. This shows that their duties are not confined exclusively to editing. This is the point that I wish to bring out.

The ACTING CHAIRMAN. Have any of the editors or associate editors in your division any other kind of work to perform?

(Witnesses: Hill, Zappone.)

Mr. HILL. My first assistant has a good deal of supervisory work besides editing. In fact, half or perhaps more than half of his work is of a supervisory character. We have a very busy office. When I tell you that we handled last year 6,400 separate requisitions for printing work, you will see that our office must be busy, with a great many people coming to it. A great many of them come to me; but my assistant tries to dispose of all the routine cases, and it keeps him pretty busy.

The ACTING CHAIRMAN. You have three assistant editors, one at \$1,800 and two at \$1,600. What is the difference in the character of their work?

Mr. HILL. The man at \$1,800 is practically the chief of the indexing section. He has special charge of that.

The ACTING CHAIRMAN. What is the work of the two \$1,600 men?

Mr. HILL. They are just assistant editors. There are three at \$1,600. There is an editorial clerk at \$1,600 and two assistant editors at \$1,600; and they ought to be all made assistant editors. Their work is similar. The editorial clerk at \$1,400 also does practically the same work, but he is the new man. We bring a man in at that figure. It is the "entrance salary," as it were, to our editorial force.

The ACTING CHAIRMAN. Your chief clerk, I presume, has the same duties as those other chief clerks?

Mr. HILL. Yes; and they are pretty arduous, because it gives just as much trouble to a chief clerk to look after 100 cheap people as it does to look after 100 dear people; and while our salary expense is comparatively small, the salary list is very large. We have a very large number of employees.

Mr. ZAPPONE. I would like to add that in addition to his duties as chief clerk he also audits the accounts of that division. I know that the accounts come to my office in the most excellent condition.

Mr. HILL. Thank you, Mr. Zappone.

Mr. ZAPPONE. He is a very superior man.

The ACTING CHAIRMAN. Have you any clerks in your division that are employed in any other Department or bureau?

Mr. HILL. Occasionally there is a detail to the Secretary's office, which is the only thing that is permitted us by law, if I mistake not.

Mr. ZAPPONE. I think the chairman means in other branches of the Government service, at additional compensation.

The ACTING CHAIRMAN. Have you any employees in any other branch of the service?

Mr. HILL. Oh, no, sir; no, sir.

The ACTING CHAIRMAN. Have you ever had any?

Mr. HILL. Never. I once employed a man, in ignorance, who was holding a position in another place, but he was not getting any pay there. He was a per diem man, and he was laid off; but the auditor held that I had no business to do so. That is the only time I have ever had such a case. He was a man who was not receiving compensation elsewhere. He held a commission from the other concern, but his compensation was so much a day when actually at work, and he was not actually at work when I employed him. That is the only case of the kind.

The ACTING CHAIRMAN. It was a violation that was not a violation?

(Witnesses: Hill, Zappone.)

Mr. HILL. I do not think it was a violation myself. I think if Mr. Zappone had been the auditor there would have been no trouble.

Mr. ZAPPONE. Those matters have to be watched very closely in our Department, Mr. Chairman, on account of that law, which pertains exclusively to our Department; and our auditors sometimes hew pretty close to the line, because we do not want to run the risk of a disallowance by the Treasury Department.

The ACTING CHAIRMAN. Are any of those persons employed on the outside?

Mr. HILL. Occasionally a man is allowed, on application, to do a little outside work of the character I will describe. He is obliged to apply; he is not allowed to take any work, even of the most temporary character, without applying for permission, and its acceptance has to be recommended by me and referred to the Secretary, where it involves any compensation. It is very rarely—I do not think it has happened more than a dozen times since that rule was established—that we have had to make an application of that kind. One of my men assists his wife in running a little publication occasionally; but we do not allow them to assume any responsibility outside of our office. For instance, one of our artists did some heraldic work, painted some china for a man; but he did it just temporarily, during his evenings. We would not have allowed him to undertake a contract for any such work. We would not, for instance, allow a man to read proof for a publication that came out regularly. One of my men had a proposition made to him to assist in the proof reading of a publication of some consequence; and he consulted me, and I advised him against it. I said: "You will be having two masters." Said I: "If you simply wanted to go two or three evenings and help a man who got behind with a little job of proof reading, I would make no objection; but this is assuming a steady responsibility, and I think it would be unwise."

The ACTING CHAIRMAN. Do those editors write articles for journals and periodicals outside of the Division?

Mr. HILL. Sometimes, but very rarely. I have done it myself on rare occasions; perhaps half a dozen times in twelve years. One of my editors, my first assistant, recently brought me a little article of about six pages of typewriting which he had prepared, and wanted my approval of it, as it related to the business of the Department. He was proposing to contribute it without remuneration, however, simply to help out a space writer, a syndicate writer, who had asked him for some notes from which to prepare an article. He got into it, and wrote an article which was so good that the syndicate writer wanted to use it as it stood. That is all.

The ACTING CHAIRMAN. You censor all articles that are written outside of the Bureau, do you?

Mr. HILL. The rule of the Department, not only in my division, but in all of them, is that any departmental matter that is discussed by a man for publication must be submitted by him to his chief, whether he gets compensation for it or not, and whether he has special permission or not. If I were to write an article upon the meat-inspection work, I would feel bound to show it to Doctor Melvin, and not publish it unless Doctor Melvin said, "That is all right." That is your understanding, is it not, Mr. Zappone?

(Witnesses: Hill, Zappone.)

Mr. ZAPPONE. It is, sir. Oftentimes, when a bureau inadvertently endeavors to issue instructions or forms that overlap the work of another bureau or division the Chief of the Publications Division will bring it to the attention of the bureaus concerned, so that they may be apprised of the matter before it has gone any further, and take it up and discuss it with a view of preventing any duplication of work. I think that is one of your duties; is it not, Mr. Hill?

Mr. HILL. That is one of the things that, as departmental editor, devolve upon me exclusively, I think. For instance, a man gets up a blank in which he discusses methods or gives instructions in regard to the methods of preparing accounts. I would send that in to Mr. Zappone and see whether it squared with the fiscal regulations of the Department.

The ACTING CHAIRMAN. Your censorship applies to articles which are published without remuneration as well as to those which are published for remuneration?

Mr. HILL. Entirely; yes, sir.

The ACTING CHAIRMAN. Does it apply in the case of delivering lectures? Are the lecturers supposed to outline what they are going to talk about?

Mr. HILL. They are supposed to. I do not know how far that goes, but I think every chief would expect his subordinate to give him a chance to look over his paper before he went outside to read it. I think it is generally done. I could not speak for that in other divisions. I know I would certainly expect it. If one of my men went out to give a talk upon the publication work of the Department of Agriculture, I am quite sure that he would bring me the paper that he had prepared before he read it.

The ACTING CHAIRMAN. You have no work outside of Washington, have you?

Mr. HILL. No work outside of Washington; no, sir. Once in a while I have sent the chief of the illustration work to investigate some new process of illustration which it was thought might possibly be made available with economy in our work. I think he has made two trips of that kind in the course of the last five years at a probable total expense of \$60 or \$70. But we have practically, I may say, nothing outside of Washington.

The ACTING CHAIRMAN. Are all of the clerks in your division fully employed?

Mr. HILL. Very fully, sir; to the full extent of their capacity. I think I may say with some gratification, as an evidence of improvement in the character of the personnel and in the assiduity with which the great majority of my people attend to their work, that we have increased the work of the division every year from 10 to 20 per cent, with an increase of the expenses running from 3 to 5 per cent.

The ACTING CHAIRMAN. With what increase in the personnel of the force?

Mr. HILL. The increase in the expense would be very much in the same proportion as the increase in the force.

The ACTING CHAIRMAN. How do you make promotions?

Mr. HILL. Of course you mean to ask how I start to get a promotion. I do not make any, of course. I have no promotive power.

(Witnesses: Hill, Zappone.)

The ACTING CHAIRMAN. Your recommendations are to the Secretary, I suppose?

Mr. HILL. But I make the recommendations for promotions, when a vacancy occurs in a grade, after consultation with the chief of that line of work. (I can not call them, for convenience, anything but chiefs, though they are not chiefs.) Taking that into account, and also the efficiency reports for the last year or two, it generally resolves itself into a question of two or three people. For instance, we will say an \$840 vacancy occurs. I will go over the \$720 people who are eligible for promotion under the laws of the classified service; and as a result of consultation with those who have direct charge of the work of those people, and the efficiency reports, we will get down to perhaps two or three.

The ACTING CHAIRMAN. How do you reach that conclusion?

Mr. HILL. By consultation with the gentlemen who have charge of their work, and by reference to the efficiency reports. For instance, if a man's efficiency report does not aggregate 85 out of the total of 100, he is thrown out at once.

The ACTING CHAIRMAN. Are your efficiency reports arrived at by the same method as in the other bureaus?

Mr. HILL. I suppose so, though I hardly know about that. I do not know exactly what system they follow. I have never discussed that with them.

The ACTING CHAIRMAN. Is there not an established rule as to securing those efficiency reports in the Department?

Mr. HILL. I do not think there is. At least I have always used my own judgment in filling up an efficiency report.

The ACTING CHAIRMAN. Does the same efficiency procedure that obtains in the other bureaus obtain in your Bureau?

Mr. HILL. I think so; yes, sir. I think so.

Mr. ZAPPONE. So far as the efficiency blanks themselves are concerned, they are all made out uniformly, and made out under instructions from the Secretary.

Mr. HILL. From the Secretary; we make them out every six months.

Mr. ZAPPONE. And those questions are passed on by the general Department board on promotions, consisting of the chief clerk, the appointment clerk, and the chief of the bureau or division in which the vacancy occurs.

Mr. HILL. Exactly. The chief clerk has to coincide in my recommendation, and the appointment clerk has to certify that the appointment is one which is legal and in accordance with the regulations of the classified service.

The ACTING CHAIRMAN. Have those clerks access to the efficiency reports?

Mr. HILL. Well, I do not keep them, you understand; I turn them over as soon as I make them; but I should not hesitate to show any of my clerks (although they are called "confidential") his own or her own report. I would not show them the reports made on anybody else, because the instructions that I have received are that these ratings are confidential. But as I do not keep them, you know, it would only be possible for such a request to be made and

granted during the short time that I have them while I am filling them out.

The ACTING CHAIRMAN. Have you had occasion during the last year to make reductions on account of those efficiency reports?

Mr. HILL. I have secured two reductions, and once in a while there has been a suspension of pay for a time; but these cases are very rare.

The ACTING CHAIRMAN. You receive your appointees from the Civil Service Commission, do you?

Mr. HILL. All my people come in now through the Civil Service Commission.

The ACTING CHAIRMAN. Have you any employed that did not come in in that way?

Mr. HILL. We have a few of the old ones who came in before they were covered in. There is now none in my establishment that is not within the limits of the classified service; and nearly all my responsible persons, with very few exceptions, came into the classified service, through being examined.

The ACTING CHAIRMAN. Do you know whether or not there is much of a waiting list?

Mr. HILL. I imagine that there is, clerically; but judging by the difficulty we have in filling places for skilled laborers and messengers, especially messenger boys, I judge that there can not be a very full waiting list, unless it be that the apportionment interferes. The State apportionment law, covering the apportionment to States, may possibly be one cause of that difficulty.

The ACTING CHAIRMAN. Do you find the State apportionment embarrassing to the service?

Mr. HILL. Very embarrassing as regards the minor places. In the case of messenger boys at \$30 to \$35 a month, and laborers at \$40 to \$50, it is an awful nuisance.

The ACTING CHAIRMAN. Does that apportionment apply to the higher salaries, too?

Mr. HILL. Oh, yes. The Commission occasionally waive it, I believe, in the case of some people who are experts; if they have a restricted, a very small waiting list, I believe they sometimes waive it.

The ACTING CHAIRMAN. Will you kindly differentiate between the different grades of your employees, starting with the \$600 clerks and going up?

Mr. HILL. Below that figure we have comparatively few except messenger boys. Beginning with \$600 we have messengers, who, I ought to say, do a great deal of work besides messenger work. The messenger boy in my illustration section gets less than \$600, but he is doing a great deal of work in assisting the photographer. He has developed a capacity for work in that line. He does all of my blueprint work, or a great deal of it, under supervision, of course. But that is by the way.

It would seem that we have a great many messengers. We have to have a good many, but at the same time it would be a mistake to suppose that these messengers do nothing but sit in a chair until somebody rings the bell to send them on an errand. They are at work all the time, or almost all the time, doing something—filing letters and doing simple work. In other words, they are office boys, making themselves generally useful as well as for errands.

(Witness: Hill.)

The ACTING CHAIRMAN. With a view of promotion?

Mr. HILL. With a view of promotion, because after they have been there two years they can take a clerical examination without competition. Some of them have done so. We lost one of our best messenger boys last month. He went into one of the other divisions as a clerk, having passed the clerical examination.

Then we have both clerks and skilled laborers, at \$600 and \$720.

The ACTING CHAIRMAN. What do you mean by a "skilled laborer?" Skilled in any particular form of labor?

Mr. HILL. Skilled laborers are simply laborers who are called "skilled" because, in the classified service, any labor that involves a knowledge of reading and writing is called "skilled." They are not specially expert, though some of them become very expert as folders. They do the folding and the mailing. I have a force of men for the heavy work, and a force of women for the Farmers' Bulletins. My principal foreman has a force of, I suppose, eighteen or twenty men or twenty-two men—something like that; about a score of men. He does the miscellaneous distribution and the heavy work, like the wrapping of the yearbooks and the annual reports and things of that kind, which require strong wrapping.

Then the clerical work; the largest number of clerks attending to any one particular thing are those who are addressing envelopes, addressing wrappers, and addressing labels all the time. We have a room full of those—probably thirty women—who devote almost their entire time, except when an emergency calls for some folding, to writing addresses. Then we have a considerable number of clerks who receive the mail. The mail reaches them for distribution, and they make out orders, which orders go to either the Farmers' Bulletin folding room or the miscellaneous folding room to be filled. We receive requests for publications at the rate of probably 1,500 a day, involving considerably more than one application for one publication apiece. A very large amount of clerical work is required to dispose of those requests.

Then we have bookkeepers. We have our regular bookkeeper in my division, who keeps the financial accounts, and we have a bookkeeper who keeps an account of the publications. The total edition of every publication, as it is received, is charged to us and credited with the scheme of distribution as its various parts are filled, so that the bookkeeper's books will show approximately the number that we have on hand of each publication.

Then we have the bookkeeper who keeps the accounts of the Members of Congress for Farmers' Bulletins. Each Member of Congress is credited in the ledger account with the quota decided upon for that year, and he is charged with those that he orders out. We have a very competent woman who keeps those accounts with the Members of Congress. We have had very little trouble, I am glad to say, with that. There is very seldom a discrepancy, and in almost every case where there has been a discrepancy we have come out on top.

The ACTING CHAIRMAN. How many of those Farmers' Bulletins are assigned to each Congressman?

Mr. HILL. Ten thousand, this year. The most ever assigned to them was 15,000.

(Witnesses: Hill, Zappone.)

The ACTING CHAIRMAN. Do those left over from a previous year continue to the credit of the Congressmen?

Mr. HILL. No; they revert to the Department, but the Secretary has always instructed me to put them into the pot for the next year. The reason the number is so low this year is because gradually, during the last two years, there have been fewer and fewer turned over from one year to the other, and last year there was practically none—none worth mentioning.

What I have said will pretty well cover the work of the clerks and skilled laborers from \$600 up to \$900 and \$1,000. We have very few that get \$1,200.

The ACTING CHAIRMAN. I notice that last year you had one stenographer for one month. Do you not have a stenographer all the time?

Mr. HILL. Yes; we have two or three stenographers all the time. We have one stenographer that gets \$1,200 and we have another stenographer that gets \$1,000, but we are frequently obliged to call for extra help in correspondence.

The ACTING CHAIRMAN. They are not styled stenographers in your report, are they?

Mr. HILL. No; they are just clerks of class 1 and a clerk at \$1,000.

Mr. ZAPPONE. That is strictly in accordance with the wording of the law.

Mr. HILL. There is one thing that bothers me a good deal in this statutory roll, and that is the crystallization of people under a name. For instance, I have a photographer. I might have a vacancy in the artist's room for a draftsman and artist or a clerk or draftsman that he would deserve to get, and yet I could not give it to him because he is styled a photographer. And so with the skilled laborers. I get skilled laborers who can do clerical work, but I can not give them clerical pay, because they are appropriated for as skilled laborers, and the only vacancy is that of a clerk. I think that in some of the bureaus, Mr. Zappone, that has been changed somewhat. In the Secretary's roll I think I noticed that it is "clerk or skilled laborer"—so many clerks or skilled laborers, at so much.

Mr. ZAPPONE. That has been done in one or two of the bureaus, and it is with the end in view of being able to assign them to either work.

Mr. HILL. It is a great convenience, where the statutory roll confines you, ties you, and binds you as it does, to have a certain latitude in your designation.

The ACTING CHAIRMAN. Then the designation in your report does not always indicate the character of work being performed by that person?

Mr. HILL. No, sir. In a general way the clerks do clerical work and the messengers do messenger work, but they are all apt to do other things besides.

Mr. ZAPPONE. For instance, Mr. Chairman, in my division I have a statutory place called "Custodian of files and records." I have to keep that man strictly on that work.

The ACTING CHAIRMAN. Your stenographers are engage in taking dictation?

Mr. HILL. Two of them are all the time, and quite frequently a third, and every once in a while we have had to fill a place temporarily, and the temporary clerk that has accepted the place has

(Witnesses: Hill, Zappone.)

proved to be a stenographer and we have given her work of that kind to do.

The ACTING CHAIRMAN. Do they also do typewriting work?

Mr. HILL. Yes; all of our stenographers do typewriting, but not all of our typewriters do stenographic work.

The ACTING CHAIRMAN. How many typewriters have you?

Mr. HILL. I have seven or eight that do typewriting.

The ACTING CHAIRMAN. How do you make your requisitions for supplies?

Mr. HILL. The requisitions all come to me through my chief clerk.

The ACTING CHAIRMAN. Describe the procedure of that requisition from its beginning until it reaches you.

Mr. HILL. We will take a concrete case: Mr. Handy, who has charge of the document section, will write that he is out of a certain size and quality of envelope, and will recommend that we order 150,000. We generally order enough to last six months; that is our idea. The chief clerk, Mr. Mudd, will make out a requisition, where it is a thing that is on the contract book—you understand what I mean by that, where there will be no difficulty about the price—and it goes in to the supply clerk and from the supply clerk, I understand, to the disbursing officer.

Mr. ZAPPONE. That is to see whether it is in conformity with law and the fiscal regulations.

Mr. HILL. Exactly—if we are legally entitled to pay out of that fund for this purpose, and it is not authorized by the Secretary until the disbursing clerk has passed upon it and said that it is all right.

The ACTING CHAIRMAN. Who passes judgment upon the necessity of that supply?

Mr. HILL. The chief clerk and myself. For instance, if I saw that a thousand cards were wanted, I would probably send for the chief clerk, and say: "What do we want with a thousand of these cards? How long will they last us?" If he should show me that the use of them would probably absorb that number in six months, that we used 800 in the past six months, and that their use is increasing, I would let it pass. But I am responsible myself, personally, on his statement.

For instance, if some new device is needed in the mailing, as there was some years ago, a method of addressing with a sort of stencil arrangement, that, of course, was made the matter of very considerable consultation, and one of the machines was placed in our hands for a month or two for trial, and when we were perfectly satisfied that it was the thing we wanted we made a requisition for it, accompanied by a letter stating the reasons why, and why we had to get it from these people, and that the price was the lowest that we could get anywhere.

The ACTING CHAIRMAN. Does any person make an examination of the supplies on hand to corroborate the request of the person originally making the request?

Mr. HILL. No, sir; I take the word of the chief of the division that he is out when he says he is out.

The ACTING CHAIRMAN. Would there be a possibility of ordering when they were not out?

(Witness: Hill.)

Mr. HILL. Yes; there would be a possibility, but from the nature of our supplies I do not see that anybody would benefit by it.

The ACTING CHAIRMAN. There would be no possibility of anyone benefiting by an oversupply of any particular article?

Mr. HILL. No. A messenger might steal a few pencils, perhaps, but the cost of keeping a check upon pencils would be far greater than the total loss of pencils would amount to.

The ACTING CHAIRMAN. Would the same thing apply to other supplies?

Mr. HILL. The other supplies are of a nature that could hardly be used. That is the only thing I can think of.

The ACTING CHAIRMAN. Take the case of envelopes.

Mr. HILL. All our envelopes are printed, you know, and there is a penalty of \$300 for their use by private parties. A penalty slip is printed on them. I do not see how, with that penalty slip, there could be any private use of envelopes.

The ACTING CHAIRMAN. Are there any of the supplies that it would be advantageous for a person to order, when there was no necessity for them, for his personal use?

Mr. HILL. I should say not unless a man was an extraordinary mean man, in which case he might sneak a pair of scissors once in a while—a pair of shears or something of that kind. But I have entire confidence in each of these gentlemen. We have a good, responsible person in charge of each room, you will understand, Mr. Chairman. In one room we have the foreman; in another room we have the chief of the document section; in another room we have the first assistant, who is a thoroughly responsible man; in another room we have a forewoman. We have two forewomen practically. The document clerk is in charge of another room. These are all thoroughly responsible people, and they are responsible for the proper use of the supplies, and there are none of our supplies that are intrinsically very valuable. In order to make a haul worth taking away they would have to load themselves with a waste-paper basket chock-full of stuff.

The ACTING CHAIRMAN. How many Yearbooks are published annually?

Mr. HILL. Five hundred thousand were published until this year. This year there will be less published. I believe the Printing Committee under the new law decides upon a limited number. It is not required to print the whole number authorized by law at one time.

The ACTING CHAIRMAN. What occasioned that decrease?

Mr. HILL. They agreed, as I understand, to publish 330,000, which, with the 30,000 ordered for our Department, will make 360,000. Now, I do not understand that they restrict the Members' quota at all. The Members will get the same quota, and if all the Members should draw them, of course eventually they would have to print more; but they are not going to print them until they need them. They are going to put a limit upon all these Congressional publications, I understand, in that way. All that we handle are the 30,000 of the Yearbooks that come to us.

The ACTING CHAIRMAN. Is that number of 30,000 sufficient to meet the demands of your Department?

Mr. HILL. Not by any means; not by any means.

(Witness: Hill.)

The ACTING CHAIRMAN. How many do you estimate would be required to meet the demands of your Department?

Mr. HILL. I have asked two or three times for 50,000. I consulted the Secretary first, and satisfied him that we needed them. The Secretary is very conservative about asking for anything. He makes us satisfy him very thoroughly that we need things before he will permit us to even ask for them.

The ACTING CHAIRMAN. What is your opinion as to the value of that publication?

Mr. HILL. I think it is a very valuable publication, sir.

The ACTING CHAIRMAN. There is a great demand for it, is there?

Mr. HILL. There is a great demand for it. There are a great many people besides the farmers that ask for these Yearbooks. There have been one or two propositions in the House to furnish it to all the students in agriculture at the agricultural colleges.

The ACTING CHAIRMAN. Do you approve of that?

Mr. HILL. I think that would be a very good idea; but I would like to see it done by giving us such additional allotment as would be needed, with a proviso that the Secretary should furnish one of the Yearbooks to each student taking the agricultural course in each agricultural college.

The ACTING CHAIRMAN. How many copies of the Secretary's annual report are published each year?

Mr. HILL. The report is published, by law, in two editions—one as a part of the reports, published and bound with the reports of his chiefs, making up the annual report of the Department, or the business report—Part 1, as it is called in the law. Part 2 is the Yearbook. It is reprinted in the Yearbook, because the law says that the Yearbook shall contain a succinct account of the operations of the Department for the year, and the most succinct account we have is the Secretary's report. Then it is published separately to the number of 5,000, which is also provided for by statute law. But we do not begin, with these publications, to have enough to satisfy the demand, and we republish it as a report of the Secretary's office, a bulletin of the Secretary's office, in an edition of about 50,000.

The ACTING CHAIRMAN. That is Part 1?

Mr. HILL. No; that is only the Secretary's own report. It is about 100 pages. Part 1 includes the reports of the chiefs to the Secretary, as well as the Secretary's report to the President, and it is printed in an edition of 6,000. That is provided for by statute.

The ACTING CHAIRMAN. Will you give, in your own way, your opinion as to the general value of the publications of your department?

Mr. HILL. I think that under the present system there are very, very few of them that are not valuable and none that are not worth what it costs to issue them. With prudence as to the size of the editions, care to avoid redundancy, and scrutiny to prevent undue and extravagant illustration, I think every bulletin may be said to be worth at least what it costs, and the great majority of them worth a great deal more.

As a matter of fact, the publications of the Department are the ultimate expression of its service in acquiring useful information. The organic law of the Department says that it shall be the duty of its

(Witness: Hill.)

head to acquire and to diffuse by all the means at his command information useful to agriculture in the broadest and most comprehensive sense of that term; and the most obvious way he has of diffusing the information that he acquires through his investigators is by publication.

The publications are subdivided now so as to reach nearly all classes. With the Farmers' Bulletins, and circulars, and extracts from the Yearbook we reach the masses of the practical farmers of the country. The technical and scientific bulletins are designed for a somewhat different class. They are designed for students who are studying agricultural science, for the professors and experimenters at the agricultural colleges and experiment stations, and for scientific men generally, who have a right to be informed as to the methods pursued by our own investigators in conducting their scientific investigations. They can not test the value of their conclusions without knowing something as to the nature and character of their investigations. Consequently we permit in these bulletins a somewhat more scientific style than we do in the popular bulletins, because their circulation is large and among a class of people of more than average education.

(At this point Mr. Littlefield resumed the chair.)

The CHAIRMAN. They are largely technical in their character?

Mr. HILL. They are more or less technical in their character. The man who works in the laboratory investigating a problem in scientific agriculture, whether it be bacteriological, chemical, physical, or pathological, has to tell his colleagues and has to tell the public at large what his conclusions are. The Farmers' Bulletins exist for giving the things that are not contributions to science, but that are accepted, that are positive, that may be stated didactically, for the instruction and information of the farmers; and they have to be expressed in the plainest, simplest language possible. But the report of a man's investigations and of his laboratory work we can afford to allow him to make in a somewhat less popular form. In other words, he has to use something of the language that pertains to his calling.

The CHAIRMAN. That is, he must couch his paper in that terminology?

Mr. HILL. He has to, for exactness.

The CHAIRMAN. Yes; to get accurate expression.

Mr. HILL. To get accurate expression.

Mr. SAMUEL. Is the demand for those publications increasing?

Mr. HILL. It is increasing to such an extent that I do think that daily we have to decline (because we have not got them) sending more publications than we actually are able to send out.

Mr. SAMUEL. Do you decline or simply ask the applicants to wait until you have a reprint?

Mr. HILL. That depends upon whether a reprint is contemplated or not. Lately we have been referring them to the superintendent of documents, and telling them they will have to purchase the documents desired. We are practically reduced now, owing to the enormous publication work of the Department without a very adequate corresponding increase in the appropriation, to publishing for gratuitous distribution Farmers' Bulletins and circulars only. Then of the

(Witness: Hill.)

more or less technical bulletins—the bureau bulletins—we publish enough to supply the libraries and the agricultural colleges and other institutions of learning, foreign exchanges, and people that may best be described as correspondents actively cooperating in the work of the Department—people who render service to the Department, and who in that way earn the right to apply to us for such bulletins as they want. In fact, that is the most economical way that these men can possibly be remunerated, because their remuneration for services rendered, if it was put in dollars and cents, would be more or less considerable, and the publications that they ask for will probably cost the Government only \$3 or \$4 to print. But the miscellaneous requests from Tom, Dick, and Harry for these publications we refer to the superintendent of documents, where most of them can be purchased for from 5 to 25 cents apiece—an average of less than 15 cents, I think.

The CHAIRMAN. Does the Government get any revenue of any consequence out of that sale, as a commercial proposition?

Mr. HILL. I think the superintendent of documents is beginning to. I think he sold about \$17,000 worth last year.

The CHAIRMAN. Do you get any inquiries from the public to whom these documents are distributed, indicating that they have examined the works and have had suggested to them new and interesting lines of inquiry, and are therefore getting a beneficial use from the literature?

Mr. HILL. The only inquiries that would reach my office that would indicate anything of that sort would be requests for more publications, stating, as they very frequently do, that we sent them a publication on thus and so, and that they were very much interested in it, and they want to know if we have published anything on this subject or anything on that subject. We get a great many such letters.

The CHAIRMAN. Those are undoubtedly induced by the circulation of your literature?

Mr. HILL. Undoubtedly. In the case of a work that would induce a man to write on a subject that he had read of—we will say alfalfa, or diseases of poultry, or something of that sort—where he would write for further information, or for some details that he thought were not given clearly enough in the bulletin, that letter would not come to me. It would go to the Bureau of Plant Industry if it referred to alfalfa, and would be referred from the central office there to the expert on forage plants, and he would answer the letter. But we get a great many letters asking for publications, and referring to the fact that we had sent them something previously which they had found very useful and very practical, and saying that they want something more. We send out monthly lists of publications.

I would like to put in a word about salaries, if I may.

The CHAIRMAN. Certainly.

Mr. HILL. I think that it is noteworthy, and I am pretty sure I am safe when I say that, taking my own salary and the salaries of all the force, beginning with myself and going down to the lowest, that we will average one or two hundred dollars less than the average salaries of any other bureau or division in the Department. I am speaking now of the statutory roll, but that includes in my case all the highest-priced men I have. The lump fund includes only very, very low-

(Witness: Hill.)

priced people, whereas in most of the scientific bureaus the lump fund includes some of their highest-priced men.

I think it is only fair to my people to present that consideration.

The CHAIRMAN. So that those salaries, whatever their size may be, are statutory salaries?

Mr. HILL. They are statutory salaries.

The CHAIRMAN. And their fixing does not involve the discretion of the Department. Do you have any difficulty in getting sufficient personnel for your Division?

Mr. HILL. No, sir; we have found the Civil Service Commission quite adequate to filling the better class of places, the good clerkships, and in the case of my editorial assistants they generally allow me to draw up an examination. All of my editorial assistants have come in through the civil service as the result of an examination which I have prepared myself, and the only difficulty we have is in the very, very low-priced places—skilled laborers, as they are called.

The CHAIRMAN. I understand that you have already been over this matter.

Mr. HILL. Yes, sir. When the salary is \$50 and less there is a little trouble, which, I think, comes largely from the apportionment to the different States.

The CHAIRMAN. What is that—\$50 a month?

Mr. HILL. Where it is \$50 a month or less. It is a great nuisance to have to “buy a pig in a poke” and send to Alabama or Mississippi or Tennessee or Oregon to offer people \$40 or \$50 a month as skilled laborers.

The CHAIRMAN. Would you like to make any further statement with reference to the commercial utility of the work of your Division?

Mr. HILL. No, sir; I think not. I think I have said as much as my modesty will permit about that. I am very much obliged to you for your kind hearing, sir.

The CHAIRMAN. We are greatly obliged to you, Mr. Hill.

(The committee thereupon took a recess until 2 o'clock p. m.)

OFFICE OF EXPERIMENT STATIONS.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, January 24, 1907.

The committee met at 10.45 a. m. Present: Hon. Charles E. Littlefield (chairman) in the chair, and Hon. E. W. Samuel.

STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE OFFICE OF EXPERIMENT STATIONS, DEPARTMENT OF AGRICULTURE.

(Doctor True was sworn by the chairman.)

The CHAIRMAN. You are the Director of the Office of Experiment Stations?

Doctor TRUE. Yes, sir.

The CHAIRMAN. What is the nature of the duties that you discharge, Doctor?

Doctor TRUE. I have charge of an office which was established primarily to represent the Secretary of Agriculture in his relations with the agricultural colleges and experiment stations under the acts of Congress of 1862, 1887, and 1890. Since that time, through special legislation, we have been directly charged with the management of agricultural experiment stations in Alaska, Hawaii, and Porto Rico, and also with the management of certain special investigations ordered by Congress and assigned to us by the Secretary. These are on two general lines: First, an investigation on human food and nutrition, and, second, an investigation on irrigation and drainage.

The CHAIRMAN. Do you keep in touch with the various State experiment stations.

Doctor TRUE. Yes; we keep in close touch with them.

The CHAIRMAN. How many other bureaus of the Department of Agriculture are conducting experiments in collaboration with the experiment stations?

Doctor TRUE. Several of the bureaus.

The CHAIRMAN. The Bureau of Plant Industry and the Bureau of Animal Industry?

Doctor TRUE. Yes.

The CHAIRMAN. And the Bureau of Soils?

Doctor TRUE. The Bureau of Soils and the Bureau of Entomology.

The CHAIRMAN. There are four.

Doctor TRUE. And the Bureau of Chemistry.

The CHAIRMAN. There are five. All these five bureaus are con-

(Witness: True.)

ducting experimental work with the State experiment stations upon their own account, as I understand it?

Doctor TRUE. Yes.

The CHAIRMAN. Now, why is it necessary to have the experimental work at those stations under the charge of an independent representative of the Department? Do you have charge of these five people that represent these other bureaus?

Doctor TRUE. No, sir.

The CHAIRMAN. Is your line of investigation independent of theirs?

Doctor TRUE. Yes. We do an entirely different kind of work in its relation to the stations generally. It is our business to supervise the expenditure of the funds given to the stations under the act of Congress of 1887, and now under the act of Congress of 1906, and to give those stations such general advice and assistance as we may to promote their interests. We also collect their publications, and on the basis of those we issue publications, both technical and popular, for general distribution throughout the country. The object of our publication is that the people in all the States may become acquainted with the experiments that are carried on by the stations in any one State.

The CHAIRMAN. Are those publications United States Government publications?

Doctor TRUE. United States Government publications. That is, the stations—

The CHAIRMAN. Have literature of their own?

Doctor TRUE. Yes; which they distribute in the States, principally.

The CHAIRMAN. That is a sort of advisory and supervisory work?

Doctor TRUE. Yes; that is our function.

The CHAIRMAN. Do you visit these institutions?

Doctor TRUE. Yes.

The CHAIRMAN. Personally?

Doctor TRUE. Yes.

The CHAIRMAN. Are the duties of these five men who are there representing these other bureaus of such a character that it requires, in order to effectively carry on that work, the presence of the five representatives they have there?

Doctor TRUE. I did not quite understand your statement regarding five men. I said that these five bureaus engaged in work in connection with the experiment stations.

The CHAIRMAN. Each does not necessarily have a man there?

Doctor TRUE. Oh, no.

The CHAIRMAN. Working in harmony with the station all the time?

Doctor TRUE. No, sir. I simply meant by that that they cooperate with the stations in various enterprises. For instance, if the Bureau of Plant Industry is carrying on experiments in the introduction of a new variety of wheat, they may make arrangements with a dozen or twenty experiment stations in different parts of the country to test that wheat. Then the bureau may at certain times send one of its representatives there to see what progress is being made, notice the results, and in that way collect the results for the whole country for publication.

(Witnesses: True, Zappone.)

The CHAIRMAN. So that their representatives are not continuously employed at the respective stations?

Doctor TRUE. No, sir.

The CHAIRMAN. Except as they have particular work that they are doing?

Doctor TRUE. No, sir.

The CHAIRMAN. Would it be possible to have all the experimental work conducted by the Department of Agriculture under your supervision, for instance, or is it necessary to have these various bureaus each represented on its own particular lines and working, in a sense, independently of each other?

Doctor TRUE. I think our present system is the desirable one.

The CHAIRMAN. Why could they not be combined? Just give your reasons, if there are any?

Doctor TRUE. My reason is this, that the Department of Agriculture, acting as a central organization, can oftentimes take up questions of large general import and carry them on more successfully than any individual station would carry them on. Now, in order to do that, it is necessary, I think, that we should have a bureau organization along the different lines of agriculture and experts connected with those bureaus who are familiar with the special lines of work in a broad way, and they can come in and supplement the work of the experiment stations and thus make a stronger enterprise.

If the management of that work were turned over to the Office of Experiment Stations, it would mean, of course, that the Office would absorb a large share of the work which the Department is doing.

Mr. ZAPPONE. It is purely scientific work in the other bureaus?

Doctor TRUE. Yes; and it would change entirely the character of our work. It does not seem to me that it would be feasible or desirable.

The CHAIRMAN. On what lines is your advisory and consulting work directed—that is, what lines of investigation? Do you advise in connection with all the work of the experiment stations, or are you confined largely to some lines of investigation?

Doctor TRUE. They ask our advice on all sorts of matters; on any matter connected with their work.

The CHAIRMAN. Then there are five bureaus that are collaborating with the State experiment stations on their five independent lines, and you are likely to be consulted by the State experiment stations in regard to those questions?

Doctor TRUE. We may be; yes, sir.

The CHAIRMAN. Is that the fact, in your experience?

Doctor TRUE. Yes.

The CHAIRMAN. That you are so consulted?

Doctor TRUE. Yes. But in such cases we either consult with the bureau immediately concerned, or refer the matter altogether to that bureau.

The CHAIRMAN. Your advisory and consulting capacity embraces the whole scope of the experiment stations, does it not?

Doctor TRUE. Yes, sir.

The CHAIRMAN. Does that involve any duplication of work by way of revising or examining work done by other representatives of the Department of Agriculture who are collaborating with them?

(Witnesses: True, Zappone.)

Does it involve any duplication of work that is being done by you and your Bureau?

Doctor TRUE. No, sir; I do not think it does, because we examine the work of the stations in a different way.

The CHAIRMAN. From what point of view, then, do you examine this?

Doctor TRUE. We examine in a more general way. For example, if the Bureau of Plant Industry is conducting investigations regarding varieties of wheat at a station, their expert would go there and examine that work in detail with reference to that particular undertaking. Our representative would go and make inquiry in general regarding the work that was thus being done, whether it was satisfactory to the station and whether it was producing results. We would also inquire what relation that work had, with regard to the matter of expenditure, to the expenditure of the funds directly given to the station under Federal law.

The CHAIRMAN. Of these investigations, as I infer from what you have to say, one is intensive and the other is extensive?

Doctor TRUE. Ours is general and advisory.

The CHAIRMAN. One is included under the title of "intensive" and the other is extensive?

Doctor TRUE. Yes.

The CHAIRMAN. Why can not the man who makes the intensive or detailed examination carry it out in a general way and do the whole thing?

Doctor TRUE. Because he would not be prepared to undertake such work as a rule; he would be simply a specialist and would not be acquainted with the general business of the station or with the business of our office.

The CHAIRMAN. Is there any reason why he could not be acquainted with it? Why could he not have that information? Of course I do not know what the practical conditions are, but why could not one man have both these lines of information, and develop along both those lines of investigation and thus save expense?

Doctor TRUE. Because that would be too great an undertaking, I should say.

The CHAIRMAN. That is, you think it would not be possible for one man to undertake to be informed on the two branches of investigation?

Doctor TRUE. No, sir; not in the way in which it is desirable to have it done.

The CHAIRMAN. Your work, then, supplements the work done by the other investigator?

Doctor TRUE. In a sense that is so; but, of course, to understand what is the real case we would have to go more into details of the actual operations of the stations in connection with my office.

Mr. ZAPPONE. Is it not a matter of fact, Doctor True, that the experiment stations communicate direct with the other bureaus named in their cooperation work?

Doctor TRUE. Yes.

Mr. ZAPPONE. And that your duties are only supervisory as regards that work?

(Witnesses: True, Zappone.)

Doctor TRUE. Yes.

Mr. ZAPPONE. That must of necessity be so on account of the scientific nature of the work that they are conducting. They alone would have the necessary data in connection with that work.

Doctor TRUE. Yes.

(At this point Mr. Littlefield left the committee room and Mr. Samuel assumed the chair.)

Mr. SAMUEL (in the chair). Are there any duplications in your office of the work in any other Bureau?

Doctor TRUE. I do not know that there are.

Mr. SAMUEL. Do you conduct your investigations along the same lines as those of the other Bureaus or is your work corroborative or is it in a distinct line?

Doctor TRUE. The work which we do is in a distinct line.

Mr. SAMUEL. Will you please simply explain in your own way the work which your bureau does?

Doctor TRUE. Speaking first of our relation to the agricultural stations, it is our business to determine whether the Federal funds given to those stations are properly spent. In order to determine that we prepare for the Secretary schedules for reports on those expenditures, and the stations are required to keep their books in such manner that they can make up their accounts according to those schedules. They are also required to keep vouchers properly made out and marked to show what their actual items of expenditure are under the appropriation acts. Our representatives then annually visit each station and examine the books and determine whether the expenditures have been in accordance with the law, and on the basis of such examination we report to Congress annually regarding each station. In connection with those visits of inspection we hold conferences with the officers of the stations and in some cases with the boards of trustees, and advise them regarding matters relating to the organization of the stations, their buildings, and equipment and lines of work.

Mr. SAMUEL. Are those the stations of the United States Government or of the States?

Doctor TRUE. Those are stations established under State authority in connection with the so-called land-grant colleges, and they receive as endowment from the Federal Government grants of money from year to year under the so-called Hatch and Adams acts.

Mr. SAMUEL. Are those stations State agricultural colleges?

Doctor TRUE. The stations are organized under the Federal law as departments of the agricultural colleges.

Mr. SAMUEL. Then they are separate from the State agricultural colleges established by the State?

Doctor TRUE. No, sir. They are departments of those colleges.

Mr. SAMUEL. Of those colleges?

Doctor TRUE. Yes, sir. Now, of course, I have not gone over all our work, but simply one of the most important features of it.

Mr. ZAPPONE. I think, Mr. Chairman, you wish Doctor True to speak only of the experiment stations at this time, do you not?

Mr. SAMUEL. Yes, sir.

(Witnesses: True, Zappone.)

MR. ZAPPONE. You do not wish him to speak of the other work performed by his office at this time?

MR. SAMUEL. I would ask you to give us a statement as to your work at the State experiment stations.

DOCTOR TRUE. I have now outlined our inspection service. Besides that we act as a sort of clearing house or exchange bureau for all the stations throughout the United States, conducting correspondence on their behalf with them and with similar stations organized in some 50 countries of the world. We collect the publications of all the stations in this country and throughout the world, and on the basis of those publications we issue publications of our own, summarizing the results of the work done everywhere. Those publications are of two classes. One is the technical class, in which we put the methods and results of experimentation in a scientific way for the benefit of the workers in all our stations and in the Department of Agriculture. Our principal publication of that class is a monthly journal called "The Experiment Station Record," which is undoubtedly the most complete summary of the work of agricultural experiment stations and kindred institutions that exists in any country. This journal is made up on the basis of work reported to us by more than a thousand institutions.

MR. SAMUEL. Directly under your Office?

DOCTOR TRUE. No, sir; in different parts of the world.

MR. SAMUEL. And you use these reports in the making up of this journal?

DOCTOR TRUE. Yes, sir. And it serves, as you can readily see, as a great time saver for the men who are engaged in the investigations in the different stations and also in the Department.

MR. SAMUEL. How is it a time saver?

DOCTOR TRUE. The literature on the different subjects embraced in this journal is very extensive. We receive, for example, some 1,600 periodicals at the Department giving accounts of such work. Those are in 10 different languages. We go all over those and summarize them in convenient form. Besides that there are probably 1,500 reports of the experiment stations in this country and abroad, and of the Department of Agriculture, which are also summarized in this same publication. You can see that a man working in any particular line at a station would have the greatest difficulty in keeping up with that enormous mass of original publications. But by looking over our journal from month to month, which contains these brief, clear summaries of the work, he can select such things as he desires to look up in detail, and he can also at the same time get a pretty clear view of the progress of work in his own specialty simply by reading our journal.

MR. SAMUEL. How many copies of that journal are printed?

DOCTOR TRUE. Our present edition is 6,500.

MR. SAMUEL. Who receive it?

DOCTOR TRUE. It is sent to the libraries of the agricultural colleges and experiment stations, to about 250 other libraries in the United States, and all the scientific staff of the Department of Agriculture and of the agricultural colleges and experiment stations. It is also sent abroad to a large number of institutions with which we are in

(Witness: True.)

correspondence and from whom we receive information which we put in the journal.

Mr. SAMUEL. Have you evidence that it is appreciated by those people?

Doctor TRUE. Yes, sir; we have many evidences that it is.

Mr. SAMUEL. Kindly state some of them.

Doctor TRUE. Perhaps one of the best evidences of its appreciation in this country would be found in the records of the Association of the Agricultural Colleges and Experiment Stations, where the journal is from time to time discussed. I think you will find there clear evidence that they desire that we should make that journal very complete, and in fact do more than we do at present. The criticism which they make about our work is that our abstracts are too condensed, especially those which are taken from publications in foreign languages.

Mr. SAMUEL. Not enough in detail?

Doctor TRUE. Not enough detailed. We feel that we are not able to give more detail under present conditions. We are doing all we can with the funds put at our disposal.

Mr. SAMUEL. How many pages do you have in each issue?

Doctor TRUE. Each issue is limited to 100 pages, and we issue 12 or 13 numbers annually. Each volume carries a very complete subject index, so that you can see that if a man has a set of those journals he has a very complete index to all the work of that kind that is done anywhere in the world.

Mr. SAMUEL. Is this journal used as an authority at those colleges?

Doctor TRUE. Yes, sir. It enters into the work of the professors and students in colleges as well as that of the station men, because there they can find information on any subject connected with such work.

Mr. SAMUEL. Have you any authority to increase the number of pages beyond 100, if you desire to?

Doctor TRUE. Under the general printing law the Department of Agriculture can not increase the publication beyond 100 pages unless it cuts down its edition to 1,000 copies. That would be entirely insufficient in the case of this journal. The operation of that law is unfavorable to such a publication, because it entails what seems to us unnecessary expense—that is, if we were allowed to publish an irregular number of pages—sometimes it might be 95 and sometimes it might be 125—it would not be as much labor to make up the journal. Now, we have to calculate as closely as we can, in the first place, how many pages it is going to make, and then we have to put in or cut out when the proof comes to us, and that involves labor on our part and expense on the part of the Printing Office.

Mr. SAMUEL. How many persons have you employed in the preparation of this journal for the printer?

Doctor TRUE. There are ten men who work on that journal, though no one of them spends all his time on it.

Mr. SAMUEL. They have other duties besides that, have they?

Doctor TRUE. Yes.

Mr. SAMUEL. What other publications have you, and please outline their scope and usefulness?

(Witness: True.)

Doctor TRUE. The second class of publications is of a popular character and is included in the general farmers' bulletin series of the Department. There we are making what may be called a record of the practical results of the experiment-station work. This is done in order that the farmers throughout the country may be acquainted with the results of experiment-station work done in the several States. These bulletins, as you know, are very largely distributed by Members of Congress, and last year we issued about 2,000,000 copies of such publications, this being about one-third of the entire farmers' bulletin issue of the Department of Agriculture.

(At this point the chairman returned to the room and resumed the chair.)

The CHAIRMAN. Does that include all your leading publications?

Doctor TRUE. Those are the leading classes of publications.

The CHAIRMAN. Do those in any sense duplicate any of the publications prepared by the Department of Agriculture?

Doctor TRUE. No, sir.

The CHAIRMAN. Do they treat of the same subjects that are treated by other bureaus?

Doctor TRUE. Yes, sir.

The CHAIRMAN. When they treat of the same subjects, in what respect are they differentiated from the other publications?

Doctor TRUE. They are merely brief summaries. For example, in the Experiment Station Record we make a brief notice of each of the Department publications. That may be simply a statement of its contents or it may have in addition a very brief summary of the gist of that publication.

The CHAIRMAN. Is there occasion for publications of that character?

Doctor TRUE. Yes.

The CHAIRMAN. What is the occasion? That, in a sense, would look like a duplication. Explain the necessity for publications such as you issue.

Doctor TRUE. I am speaking now of the Experiment Station Record, which I have already described during your absence from the room.

The CHAIRMAN. In some respects, then, that duplicates work already done; or is it simply a notice of work already done?

Doctor TRUE. It is a notice of work already done.

The CHAIRMAN. It is a sort of editing and summarizing?

Doctor TRUE. Yes. Somebody has called it a "glorified index." That is put up in volumes with a subject index, so that when a man has a set of that journal running over a number of years he has an immense amount of information readily available. Of course every lawyer will appreciate that. It is like his books of reference to law cases.

The CHAIRMAN. I wish you would explain, as briefly as you can, the methods of the work of your Department with these experiment stations—that is, so that we can understand exactly what you do and how you do it and why your work is necessary in addition to the work done by the representatives of the other bureaus in collaboration with the stations.

(Witness: True.)

Doctor TRUE. That I have already explained to a certain extent in your absence. We are charged with the supervision of the Federal funds given to the experiment stations, and under the law the Secretary must make up the schedules for those expenditures through our office, and we send those out and get the reports. In addition to that we make a personal inspection of the books of the experiment stations, sending a representative to each station once a year for that purpose. In connection with those visits we hold meetings of the station staff, and in some cases we have boards of trustees which meet together, and we go over then the general business of the station and make suggestions regarding the strengthening of their organization and work, their equipment and buildings—any matters relating to their business that seems to be pertinent. In this way we exert a very great influence over the stations, though we have very little absolute authority over them. I think you can see how that may be so. We have a limited supervision of their funds. We do not have anything to do with the appointments on their staffs. That is done by the local boards, and the lines of work are determined by the local boards. But from our general knowledge of the work that is going on in this country and abroad, by going to the stations and talking to their men and explaining to them what is done at other places and bringing up any point of weakness in their work, we are very often able to help them to strengthen the work and make it better. To do that we must of course employ a certain number of men of broad training and experience along these lines, so that we may have the confidence and esteem of the people with whom we deal. Therefore we do not employ inspectors, in the ordinary sense, but a few of our principal officers make these visits. I go myself a good deal, and a few of my best and most experienced men make these visits.

I dislike to speak of my own work in any commendatory way, but—

The CHAIRMAN. State it in your own way, and state the facts; that is legitimate.

Doctor TRUE. The evidence will show—and I will be very glad to have the committee bring in the representatives of the stations for that purpose—that our work has had a very great influence in the building up and the improvement of the station work.

The organization of the agricultural colleges varies greatly in the different States; it corresponds in a way to the general differences in the educational status of the States. At the outset there was therefore great difficulty in many places in getting the right idea regarding the work of these stations as departments of the colleges.

Mr. SAMUEL. Do you think they have the right idea applying to agriculture in those State colleges?

Doctor TRUE. In many of them they have.

The CHAIRMAN. Do you have anything to do with the colleges, or is it the experiment stations connected with the colleges with which you have special collaboration?

Doctor TRUE. We have to do with the colleges as well; indirectly, and yet in a very important way.

(Witness: True.)

The CHAIRMAN. Do you approach them in any other way except through the experiment stations?

Doctor TRUE. That is a question difficult to answer directly. It will require explanation. We deal primarily with the experiment station, but the station is a department of the agricultural college, and the whole scheme of agricultural instruction in this country is more and more based on the knowledge which the experiment stations acquire, so that the two things go together, and it is very difficult to make a separation. In going to the experiment stations we also go necessarily to the agricultural colleges. The officers of the experiment stations are in many cases also officers of the agricultural colleges, and in that way we are able to take up matters which are of great interest to the college men as well as to the station men.

The CHAIRMAN. Do these agricultural colleges have in their curricula a preponderance of courses that relate to agriculture as distinguished from general literary training, such as you find in the curricula of other colleges?

Doctor TRUE. The organization of the courses is quite different in the different States. In our best agricultural colleges a large number of different courses in agricultural subjects are offered to the students, and in some of the smaller colleges, with limited funds, the agricultural faculty is a small one, and they are not able to cover the subjects so broadly or so thoroughly.

The CHAIRMAN. Is there any college where the agricultural subjects offered to the students preponderate in the curriculum?

Doctor TRUE. In the general four years' curriculum it is thought best that the agricultural subjects should cover about one-third of the entire number of subjects in the course, and that is done in a good many institutions.

The CHAIRMAN. So that there is no college in which agriculture, pure and simple, preponderates?

Doctor TRUE. Well, now, I do not want to be misunderstood, and yet it is difficult to explain that without going into considerable detail. Let us take as an example one of our best agricultural colleges.

The CHAIRMAN. Where is it located?

Doctor TRUE. Take the college at the University of Illinois. There we have a college of agriculture as one of the colleges of the university, with a somewhat elaborate organization. The student attending that college would find there, I should say, 100 different courses in agriculture offered to him.

The CHAIRMAN. Is that University of Illinois a university with an ordinary literary foundation, or is it one of the organizations of the State college of agriculture and mechanic arts organized under that act of Congress under which these agricultural colleges are ordinarily organized? That is, is the agricultural proposition one branch of a great university or is the university devoted to and organized on the foundation of the college of agriculture and mechanic arts? Do I make that plain?

Doctor TRUE. Yes, sir. The University of Illinois grew directly out of the land grant made under the act of Congress. It has now developed into a great university through State appropriations, and

(Witness: True.)

is organized into a considerable number of colleges, one of which is the college of agriculture.

The CHAIRMAN. So that that university could not properly be said to be devoted to education on lines of agriculture, but it is a university made up of various branches of education, agriculture being one?

Doctor TRUE. Yes, sir.

The CHAIRMAN. I suppose they have a law school and a medical branch?

Doctor TRUE. Yes, sir; and a branch of engineering.

The CHAIRMAN. Yes.

Doctor TRUE. And literature, science, domestic science, etc.

Mr. SAMUEL. The study of agricultural subjects is optional with the students?

Doctor TRUE. Yes.

Mr. SAMUEL. They are not compelled to study agriculture in connection with the other studies?

Doctor TRUE. The student enters and announces his intention to pursue an agricultural course.

The CHAIRMAN. Is there any agricultural college in the country that you know of, based on the act of 1862, where the teaching on agricultural lines preponderates in the curriculum?

Doctor TRUE. No, sir.

The CHAIRMAN. Has not the tendency been rather to eliminate the agricultural lines and move rather toward the general literary education which has obtained in colleges of different character?

Doctor TRUE. The history of the land-grant colleges shows that in the first place they gave their attention to the natural sciences, which at the time of their foundation were just coming into the curricula of our colleges in this country. Agriculture was not a subject which had been put in pedagogical form, and it was very difficult in those days to organize a proper course in agriculture, so that under various influences it is true that these land-grant colleges gave a larger amount of attention to the literary subjects and scientific subjects. Some of them developed very strong courses in engineering at a comparatively early day, but it is only within the past ten or twelve years that the courses in agriculture have been put on anything like a proper basis in those institutions. The reason that they can now do that is because the agricultural experiment stations have meanwhile come in and collected data on which the courses of instruction must be founded, because, you understand, it is not simply the practice of agriculture that is to be taught in a college of agriculture, but also the theory and science of agriculture. Now, until the experiment stations had done their work there was no science of agriculture in any complete sense as there is to-day.

The CHAIRMAN. Are these agricultural courses that have now been developed under these stations attracting their fair proportion of students to these schools, to these colleges, in your experience?

Doctor TRUE. Yes, sir; broadly speaking, I think that is so. now.

Mr. SAMUEL. Have the authorities at those agricultural colleges inaugurated the study of agricultural subjects?

Doctor TRUE. The study of agriculture is now generally encouraged in those institutions.

(Witness: True.)

The CHAIRMAN. Has the percentage of students graduating from those institutions in the agricultural lines increased or decreased in the last ten or fifteen years?

Doctor TRUE. It has increased largely.

Mr. SAMUEL. In proportion to the graduates in other branches?

Doctor TRUE. Yes.

The CHAIRMAN. I would be glad if you would give offhand the percentage of increase, if you can.

Doctor TRUE. No, sir; I can not give that.

The CHAIRMAN. Is it as much as 100 per cent?

Doctor TRUE. I should hardly think it would be that.

The CHAIRMAN. Of course whether that shows any work on those lines to any extent would depend altogether upon the number upon which the percentage was predicated?

Doctor TRUE. Yes.

The CHAIRMAN. You might have had two students; and if you had four now, that would be 100 per cent increase.

Doctor TRUE. One hundred per cent; yes.

The CHAIRMAN. That is, the number of students availing themselves of that course?

Doctor TRUE. Yes.

The CHAIRMAN. Are the students who avail themselves of that course a fair percentage of the total number of attendants on those colleges; does that course get relatively the same proportion that the other branches of the universities get?

Doctor TRUE. No, sir; I do not think, broadly speaking, that you could say that that is so, as yet.

The CHAIRMAN. Do you think that the percentage is improving in that respect?

Doctor TRUE. Yes; and the quality of students is greatly improving.

The CHAIRMAN. From personal knowledge, so far as I have any, in connection with the Maine State University, I would say that there are a very small percentage of the graduates who take the agricultural course. Still, that is only an impression.

Doctor TRUE. That is true in the State of Maine.

The CHAIRMAN. That is true?

Doctor TRUE. Yes.

The CHAIRMAN. I was wondering whether that was characteristic of the country generally?

Doctor TRUE. It is not characteristic of the country as a whole, and particularly it is not true of the great agricultural States.

Mr. SAMUEL. Does not that same thing apply to the State college of Pennsylvania?

Doctor TRUE. Yes, sir; in Pennsylvania the number of students has been small. They are now, however, reorganizing that college and putting it on a much better basis, agriculturally.

Mr. SAMUEL. Has not the tendency at the State college of Pennsylvania been toward mechanics rather than agriculture?

Doctor TRUE. Yes; that has been developed largely along engineering lines.

The CHAIRMAN. That is one of the things that is true of the Maine college?

(Witness: True.)

Doctor TRUE. Yes.

The CHAIRMAN. You spoke of the fund of which you have charge, in connection with the disbursements at the experiment stations. Do you mean this sum of approximately \$195,000?

Doctor TRUE. No, sir.

The CHAIRMAN. What fund do you refer to, over which you have control? By the way, that \$195,000 is approximately the total of the expenditures of your department?

Doctor TRUE. Of my office directly.

The CHAIRMAN. Under the appropriations act, by the Government?

Doctor TRUE. Yes.

The CHAIRMAN. What fund is this over which you have supervision in addition to that?

Doctor TRUE. We supervise the fund that is granted to the stations under the act of Congress of 1897, known as the "Hatch Act." Under that act each State gets \$15,000 for work at the State stations, and there are 48 States and Territories, so that the total amount is \$720,000 a year under that act.

Last year, 1906, Congress passed what is known as the "Adams Act," for the further endowment of these stations. Under that act each State received last year \$5,000, and this year is receiving \$7,000; and the increase will go on in that way at the rate of \$2,000 a year for each State until each receives the total amount of \$15,000.

The CHAIRMAN. That will be \$30,000 a year each, total?

Doctor TRUE. Yes.

The CHAIRMAN. You say that that fund is expended in accordance with the direction of your Bureau, or under the advice of your Bureau; which is it?

Doctor TRUE. Under the advice of my Bureau. That fund is given to the States. The stations are organized under State authority and are managed by their local boards. We come in to determine whether the Federal funds have been properly spent.

The CHAIRMAN. Do you have any real control over that?

Doctor TRUE. Only control to that extent.

The CHAIRMAN. Do you make any reports?

Doctor TRUE. Yes.

The CHAIRMAN. On that subject?

Doctor TRUE. Yes.

The CHAIRMAN. Does the law require your Bureau to supervise these expenditures?

Doctor TRUE. Yes.

The CHAIRMAN. And advise with reference to their wisdom and propriety?

Doctor TRUE. Yes.

The CHAIRMAN. In what way do you exercise that supervision? Do they consult with you in advance, or do they report to you in the end, or do you look over it from time to time?

Doctor TRUE. As regards the Hatch Act, we simply prescribe in advance the form of financial report which they shall make. Then we come in after the expenditures have been made and examine not only this report, but the books of each station. We also look over their publications and the work that is actually going on at the

station which we visit, and determine as well as we can in that way whether they are making a good use of this money.

The CHAIRMAN. That is, whether the expenditure is wise?

Doctor TRUE. Whether it is wise and whether it is within the terms of the law. If we discover that it is not within the terms of the law, then we suspend the amount which we think has been wrongfully expended, and unless the station is able to show that that has been rightly expended, and that we were mistaken, that amount is deducted from the next annual appropriation. We report that to the Treasury, and the Treasury deducts that in making the payments of next year.

The CHAIRMAN. In how many instances have you had occasion to suspend payments, if any?

Doctor TRUE. Only in a few instances. There have been a few.

The CHAIRMAN. For what purpose, for instance, were they using the money in, say, the principal instance in which you suspended payments?

Doctor TRUE. In one instance I recall now there was a change in the director of the station. The man who went out put into the station account a considerable number of old bills. When we looked over the account we decided that those bills being bygone affairs, and not pertaining to the appropriation of the year for which we were making examination, could not be paid from that fund, and we therefore disallowed them. The amount in that case, if I remember rightly, was about \$1,800.

The CHAIRMAN. You hold, then, that these appropriations are for current expenditures?

Doctor TRUE. Appropriations under the Hatch Act are annual appropriations made by Congress.

The CHAIRMAN. And you hold that they are made for current expenditures?

Doctor TRUE. Certainly; in the appropriation of the Department of Agriculture from year to year. They are not permanent appropriations—continuing.

The CHAIRMAN. Are they carried in the appropriation bills?

Doctor TRUE. Yes.

The CHAIRMAN. For the Department of Agriculture?

Doctor TRUE. Yes.

The CHAIRMAN. This is that appropriation of \$15,000 for each State?

Doctor TRUE. Yes.

The CHAIRMAN. Is this additional sum that is given to each of the States also carried in the appropriation bill, or is that carried under some general law?

Doctor TRUE. Under the Adams Act.

The CHAIRMAN. Yes.

Doctor TRUE. That is a permanent appropriation under a separate law. But there we have more authority than in the Hatch Act, because the law expressly gives the Secretary of Agriculture the duty of administering the act. We are therefore requiring of the stations that they shall state in advance what they intend to use that money for, and we are going over very carefully this year—this being the

(Witness: True.)

first year that this act has been in operation—the different projects which they are proposing.

That act differs from the other act in that it provides for a higher kind of work, as the act expressly states that the work to be done must be of the nature of original research, and naturally a good deal of discussion is going on as to just what is meant by “original research.” We are trying to solve that in a way which will lift that portion of the work of the stations to a higher plane, making it more thorough and scientific and accurate, and thus strengthening the work of the stations, and that is very much needed. The stations have gone on for a considerable number of years and have done in a considerable measure what I should call the more superficial work. They now need to get deeper into the agricultural problems, to do more fundamental and thorough work, and it was the object of this act to secure that through this additional appropriation.

The CHAIRMAN. What do you hold “original research” means? Does it mean new lines of investigation or simply lines being elaborated upon—that is, I mean in your practical application of the appropriation?

Doctor TRUE. The work may be either in a new line or in a line upon which work has been previously done, but it must contain original features.

The CHAIRMAN. What do you mean by “original features?” That is defining it by giving the word for a definition.

Doctor TRUE. That will depend on the character of the work.

The CHAIRMAN. How long have those appropriations been in force?

Doctor TRUE. About a year.

The CHAIRMAN. You have already applied some of those appropriations?

Doctor TRUE. Yes.

The CHAIRMAN. Take one college, if you please, and just tell us how you applied and made practical that original research direction.

Doctor TRUE. Take the matter of the feeding of live stock. A large number of experiments have been made, which have consisted in the trying of different kinds of feed and combinations of feed, determining the relative cost of such rations, and matters of that kind. Now, that is a line of work that has given very useful practical results, but it has gone on to such an extent that there is very little about such work as that that is new.

The CHAIRMAN. That is to say, investigators have been going over, to a large extent, the same ground?

Doctor TRUE. Yes, sir.

The CHAIRMAN. Proceed.

Doctor TRUE. But back of that kind of work are certain fundamental features of feeding which have been investigated to a certain extent, but have not been thoroughly worked out. For example, the question of the amount of protein which should be contained in the rations. We do not know to-day what that should be in any thorough way, so that there is an opportunity for a station to make an extensive, thorough investigation to determine that. That can not be done without employing the services of thoroughly trained scientists and going into the matter with a considerable number of

(Witness: True.)

animals, regardless of commercial considerations. One station some years ago undertook some investigations along this line with dairy cows, and after going a certain way it appeared that the rations which they were giving were not sustaining the cows; they were running down.

Instead of going on with the work and allowing the cows to die, the experimenter became alarmed, principally because of his limited appropriation, and he began to feed those cows another ration, and he built them up again. The result is that we do not know now what the limit of the protein ration for a dairy cow is. Some one must come along who will take up that subject so thoroughly that even if his cows die in the process he will go on and find out that thing—get to the bottom of that thing. We are doing some of our most thorough work in that line in the State of Pennsylvania, at the State college, where Doctor Armsby, who is a specialist in the subject of nutrition of animals, has constructed an elaborate apparatus called a respiration calorimeter, by means of which he can determine quite accurately what the income and outgo is for an animal—that is, we feed an animal a certain amount of food, and we determine what is excreted in the way of feces and what is thrown off in the way of respiration of the animal, and all those factors are taken into account to determine exactly what became of that food and, as far as possible, of the different elements.

Now, work of that kind, which is thorough and has definite original features in it, we say is work proper to be done under the Adams Act.

The CHAIRMAN. The expenditure of that money for original research is to be made under the direction of the Secretary of Agriculture, and therefore it comes within the scope of your Bureau as his representative?

Doctor TRUE. Yes.

The CHAIRMAN. Now, take the \$15,000 that goes to these colleges or experiment stations; is that required by the act to be devoted to any particular purpose, or is it for the use of the colleges generally?

Doctor TRUE. It must be devoted to the station work.

The CHAIRMAN. To the college purposes?

Doctor TRUE. No, sir; to the work of the experiment stations.

The CHAIRMAN. It is specifically confined to the work of the experiment stations?

Doctor TRUE. Yes. We are very careful about that. We do not allow any of that money to be spent for teaching.

The CHAIRMAN. Does the act require it to be devoted to the work of the experiment stations?

Doctor TRUE. Yes.

The CHAIRMAN. I find upon looking at this Adams Act, of which I have a copy before me, that this money is to be applied only to the necessary expenses of conducting original researches bearing upon the agricultural industry of the United States. That is the scope of that authority.

Doctor TRUE. Yes.

The CHAIRMAN. The Hatch Act provided, section 2, as follows:

That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments, etc.

(Witness: True.)

Section 3 provides—

That in order to secure, as far as practicable, uniformity of methods and results in the work of said stations, it shall be the duty of the United States Commissioner [now Secretary] of Agriculture to furnish forms, as far as practicable, for the tabulation of results of investigation or experiments; to indicate from time to time such lines of inquiry as to him shall seem most important, and, in general, to furnish such advice and assistance as will best promote the purpose of this act.

And it is under that provision of the law your Bureau operates in connection with the experiment stations?

Doctor TRUE. Yes; though subsequent legislation contained in the appropriation acts extended the authority of the Secretary of Agriculture.

The CHAIRMAN. So that it is even broader in its scope than these provisions of law which have just been quoted?

Doctor TRUE. Yes.

The CHAIRMAN. Upon what particular lines does your Bureau conduct experimental work in collaboration with the experiment stations? You have called attention to drainage, for one.

Doctor TRUE. We have investigations on the food and nutrition of man, and on irrigation and drainage.

The CHAIRMAN. Take your investigations along the line of irrigation. Are those investigations made for the purpose of developing irrigation projects, or what is the purpose of your investigations on irrigation lines?

Doctor TRUE. We are to study what may be called the agricultural problems of irrigation, and the economic problems, as distinguished from a study of the water supply or work connected with the construction of irrigation works. The Reclamation Service of the Geological Survey has authority to construct reservoirs and other irrigation works. We do not go into that line of work at all, but we take up questions relating to the distribution and use of water, the methods of applying water.

The CHAIRMAN. Not so much the question of the hydraulic problems involved in transporting the water, and distributing it, but the question of the effect of the water after it reaches the land upon the agricultural questions; is that it?

Doctor TRUE. No, sir; we study some of the hydraulic questions, and questions relating to the preparation of the land, and the utilization of small supplies of water.

The CHAIRMAN. Do I understand that this question, within the scope that you describe, is investigated and experimented with by your Bureau in collaboration with the State experiment stations?

Doctor TRUE. We work partly in collaboration with the stations and partly independent of them.

The CHAIRMAN. Where do you make your experiments on that question?

Doctor TRUE. In the arid and semiarid States—for instance, in California and in the States of Washington, Utah, and Texas.

The CHAIRMAN. Does not that in the last analysis simply involve the effect of the water upon the soil; that you find as to whether or not it increases its productivity?

(Witness: True.)

Doctor TRUE. That is the final result—that is, we seek to determine the methods for securing the greatest increase in production with the available water supply.

The CHAIRMAN. That is the last analysis?

Doctor TRUE. Yes.

The CHAIRMAN. In what way does it become necessary for your Bureau to experiment on that—that is, why is it necessary for experiments of that sort to be conducted?

Doctor TRUE. One of the large investigations which we carried on related to the duty of water—that is, the amount of water which should be put on land to produce certain effects. When we entered on this work there was no authoritative literature in this country relating to that subject. The first thing we did was to determine what was the actual practice in that respect in different localities on different soils and different crops. That part of our work is for the most part finished. We are now determining what is the amount actually required under given conditions, which is a very different thing.

The CHAIRMAN. Does not that vary with every locality, or, in other words, is it a constant factor?

Doctor TRUE. It varies within certain limits; but there are certain general limits which we can determine for wide areas.

The CHAIRMAN. That is, you have areas having common factors?

Doctor TRUE. Yes.

The CHAIRMAN. As to which the duty would be a constant factor?

Doctor TRUE. Yes.

The CHAIRMAN. And the investigation of one section of that area would be sufficient to determine the proposition with reference to the whole area?

Doctor TRUE. Yes. Now, that has important bearing on legislation and court practice with regard to irrigation, because the laws often determine in a general way the amount of water which individuals may appropriate—that is, it may be only what they can put to beneficial use. Then the courts have to take it up and determine in specific cases of appropriation whether a man is getting more water than he ought to have. Before there was any authoritative literature on this subject it was very difficult to determine what was a proper course of procedure. As a result of that you will find a great confusion in the laws and in the decisions of the courts relating to that matter. A man might come into court, for example, and claim that he ought to have 1,000 inches of water, when he only needed 500 inches, and there was really nothing to determine—no authoritative literature to determine—whether he ought to have one amount or the other, and naturally the tendency was to give a man more water than he really needed, with the result that in some cases out West on particular streams rights were decreed which largely exceeded the entire flow of the stream. That then led to more litigation to straighten that matter out.

The CHAIRMAN. What practical results did you reach in investigations of that character? Was it in the line of being able to prepare literature which was taken judicial cognizance of by the courts as a standard of use, or in the line of preparing men who became possessed of knowledge, and therefore became valuable as witnesses to establish results in contests between owners of property?

(Witness: True.)

Doctor TRUE. Our results are put into our literature.

The CHAIRMAN. The literature that your Bureau published?

Doctor TRUE. Yes; it has been used.

The CHAIRMAN. Are your publications sufficiently general in their character and application to make them valuable in that respect?

Doctor TRUE. Our literature might not be the only thing to be taken into account for a given region, but that would be taken in as one of the factors and would probably determine the matter within certain limits, so that it would be difficult for a man to come into court under present conditions and claim ten or one hundred times more water than he ought to have.

Before such literature was prepared there were cases where men claimed and obtained very large amounts of water which they could not possibly use.

The CHAIRMAN. Is it not a fact that a surplus of water is an injury and not an advantage to the user?

Doctor TRUE. Yes, sir; but under the laws of some of the States such appropriations of water may become the property of the individual, and if a man succeeds in getting, we will say, a thousand inches of water and he can use but 100 inches, he may sell the other 900.

The CHAIRMAN. Sell it in the canal?

Doctor TRUE. Sell the right to it; yes, sir.

The CHAIRMAN. Sell the right to it in the canal?

Doctor TRUE. Yes.

The CHAIRMAN. That is, I suppose, by virtue of a prescriptive right. I do not suppose people who have property along on the line of the canal can arbitrarily take out 1,000 inches when they would only be entitled as riparian proprietors, or by the necessities of their own use—the necessities of their own land—to that much water. That is what that means?

Doctor TRUE. Yes.

The CHAIRMAN. The right to use, as I understand it, is governed and controlled by the land owned by the man appropriating the water. Do I get that right?

Doctor TRUE. That is the general supposition. But oftentimes he is merely required to show that he is claiming appropriation of a certain amount of water for beneficial use. This use may be by himself or by other parties to whom he may sell his water right. And in the past, in the absence of definite authoritative statements as to how much is required for a given area, courts, taking the general evidence, have decreed rights vastly in excess of what was required.

The CHAIRMAN. That is to say, the owners of 100 acres—to illustrate and bring it down concretely—in instances have been able to get a decree from the court, confirming an appropriation on their part of inches of water largely in excess of the necessities of the land?

Doctor TRUE. Yes.

The CHAIRMAN. Of the 100 acres that they owned?

Doctor TRUE. Yes.

The CHAIRMAN. That is, 100 acres of land is entitled to so many inches of water.

Doctor TRUE. Yes; to the amount needed by that land.

(Witness: True.)

The CHAIRMAN. And that is determined by the physical necessities of the land?

Doctor TRUE. Yes.

The CHAIRMAN. And all in addition to that ought to be allowed to go down below, to the proprietor below.

Doctor TRUE. Yes.

The CHAIRMAN. How do you ascertain the number of inches of water that a man is legally entitled to on that basis? You have to wait, of course, until the irrigation system is constructed—that is, I assume you do, or do you not?

Doctor TRUE. We have to wait until that is constructed. In some instances a maximum limit is fixed, and the use may not exceed that.

The CHAIRMAN. Can you briefly state the course pursued by you in ascertaining that fact?

Doctor TRUE. We will go into a certain region and select as nearly as we can a typical tract of land. Then we will prepare that land properly, determine its moisture content, and measure carefully the amounts of water which are delivered to that land during a certain period. Then we grow crops on that land and determine the yield, and on that basis, by knowing just how much water was put on there and what the result is, we are able to calculate how much water is required to grow that crop. If that was done just for a single season and for one crop, it would not be sufficient; so of course we have to carry that work on for a number of seasons, and with different crops, so as to be able to determine what would be the amount required in a system of mixed farming under general conditions.

The CHAIRMAN. There is no scientific method, then, for ascertaining the amount of water? That is simply a matter of experimentation?

Doctor TRUE. Yes.

The CHAIRMAN. That is, a continuation of a sufficient number of experiments to enable you to generalize accurately?

Doctor TRUE. Yes.

The CHAIRMAN. And if the crop increases with additional water you continue another experiment with more water until you finally reach the maximum of increase; or if your crop increases with the reduction of water you continue the reduction until you reach the maximum of increase in your crop?

Doctor TRUE. Yes.

The CHAIRMAN. How many experiments do you ordinarily have to make before you are able to reach an accurate conclusion? Of course no conclusion you would come to under those circumstances would be scientifically accurate?

Doctor TRUE. We think that in from three to five years we can determine ordinarily with sufficient accuracy for practice.

The CHAIRMAN. These investigations are almost entirely for the benefit of the people who own the lands?

Doctor TRUE. They are for the benefit of the agriculture of the region.

The CHAIRMAN. Yes; operating through the individuals who own the territory affected.

Doctor TRUE. Yes.

(Witness: True.)

The CHAIRMAN. How generally have you covered the arid territory with your irrigation experiments?

Doctor TRUE. We have done some work in all the arid States.

The CHAIRMAN. Is there any other experimentation going on? Do not private individuals conduct experiments of that same character?

Doctor TRUE. Yes.

The CHAIRMAN. For the purpose of ascertaining those facts?

Doctor TRUE. To a certain extent, I believe. But in that branch of agriculture it is just as it is in all branches; the work of the ordinary individual is not carried on in a very thorough and systematic way.

The CHAIRMAN. Has it been your experience that the parties interested—that is, the real-estate owners and the parties owning and furnishing the water—accept the conclusions of your department as final?

Doctor TRUE. Yes, sir; in a large measure that is true.

The CHAIRMAN. That is the rule?

Doctor TRUE. Yes, sir.

The CHAIRMAN. In case of failure so to accept, then the controversy, I suppose, is carried into the courts?

Doctor TRUE. Yes.

The CHAIRMAN. And then it is a question whether the Bureau or the parties affected have made the most reliable and effective experiments. It comes down to that, does it?

Doctor TRUE. It might come down to that.

The CHAIRMAN. As a matter of practical experience, are there such controversies in court in connection with the settlement of rights?

Doctor TRUE. I do not now recall any such. There may be.

The CHAIRMAN. Then, so far as your recollection would go, the work of your department is accepted as final?

Doctor TRUE. Yes; as far as it goes, I think it is generally accepted.

The CHAIRMAN. Have you ever known of its accuracy being attacked in court?

Doctor TRUE. No, sir; I have never known any such cases.

The CHAIRMAN. Do you conduct these experiments on your own initiative, or do you wait until some controversy arises between the parties interested, and then visit the locus through a representative of your Bureau for the purpose of ascertaining what the facts are?

Doctor TRUE. We do not wait for controversies to arise. We make the investigation for the general benefit of agriculture, and that is done sometimes on our own initiative and sometimes at the request of communities or individuals in different regions.

The CHAIRMAN. You have more requests from the irrigation companies, or from the property owners?

Doctor TRUE. I do not know that there is any difference; sometimes one and sometimes the other.

The CHAIRMAN. Is it the practice for parties engaged in large irrigation enterprises to call in your Department for the purpose of settling these questions?

Doctor TRUE. Yes.

The CHAIRMAN. And in that case do you go over the whole line of the improvement for the purpose of demonstrating the amount of water that can rightfully be used?

(Witness: True.)

Doctor TRUE. We would only make experimental tests on a very limited area.

The CHAIRMAN. Yes; but would you cover tentative points along the whole line of the enterprise, so as to have a standard?

Doctor TRUE. In some cases; yes, sir.

The CHAIRMAN. Do those experiments involve relatively large or small expenses to your bureau?

Doctor TRUE. Oh, a considerable expense—that is, at present rather more than half our appropriation is going into the irrigation work—that is, I mean the appropriation for irrigation and drainage. We had \$74,200 for irrigation and drainage.

The CHAIRMAN. That is all included in the \$150,000?

Mr. ZAPPONE. Yes; the \$150,000 takes in all the appropriations for the Office of Experiment Stations under the control of Doctor True, except the \$48,000 for insular stations.

The CHAIRMAN. You had \$74,000 for irrigation and drainage, and more than half of that went to irrigation?

Doctor TRUE. More than half to irrigation. The drainage work, however, is growing, and in general this irrigation and drainage work, I may say, has met with such approval that the money has come very easily, so far as we are concerned.

The CHAIRMAN. It does not cost these private individuals anything to get this investigation, and I do not see any reason why they should not want it. I suppose, as a matter of fact, this investigation is valuable to these people who are directly interested?

Doctor TRUE. Yes; but the influence of the communities is reflected here in Congress, and it is in favor of increasing our work, so that last year we received in an appropriation about \$40,000 more than the Secretary of Agriculture estimated when the estimates were made up.

The CHAIRMAN. That would indicate that the people out in that section were anxious to have more Government money spent for their benefit.

Doctor TRUE. Very likely.

The CHAIRMAN. That is the quite obvious inference, is it not?

Doctor TRUE. Yes, sir; but that is perhaps the only way by which you can get an adequate idea of whether the community wants that work done.

The CHAIRMAN. Of course that is predicated on whether the work is valuable, and being valuable and not costing the people who are to profit therefrom anything, there does not seem to be any good reason why they should not want to increase the appropriation.

Doctor TRUE. I may say that the people generally, and in many communities, have been quite generous in aiding these investigations themselves. That is, as a rule we do not have any expense for the land or the labor involved and the use of teams and things of that sort in many cases.

The CHAIRMAN. That is, you get considerable valuable cooperation from parties directly interested?

Doctor TRUE. Yes.

The CHAIRMAN. There is no rule about that?

Doctor TRUE. No rule.

(Witness: True.)

The CHAIRMAN. That depends simply on the sentiment of the particular community where you are?

Doctor TRUE. Yes. As a rule we do not go unless they give us some encouragement. We try to make our money go as far as we can.

The CHAIRMAN. And your purpose is to get as much aid from the locality as you can, to minimize the expense to the Government?

Doctor TRUE. Yes.

The CHAIRMAN. Do the agricultural experiment stations take any hand in this experimental work that you have just been describing?

Doctor TRUE. Yes, sir. In some cases we have cooperated with them in such work, but as a rule they extend the work on beyond what we feel authorized to do. For example, if we go into a region to determine the duty of water, we do not consider it our business to make general experiments with a great variety of crops.

The experiment station that cooperates with us may come there and extend those investigations, so that they will not only be irrigation investigations, but tests of different varieties of crops, and other matters of a more general character.

The CHAIRMAN. Is it necessary to have the general variety in order to ascertain this result that you are looking for, or are the staple crops amply sufficient?

Doctor TRUE. No, sir; we do not think it is desirable to go into detail in that respect.

The CHAIRMAN. You take the staple crops, I suppose?

Doctor TRUE. Yes; we take the staple crops.

The CHAIRMAN. You speak of drainage. What is drainage—the converse of irrigation?

Doctor TRUE. Yes.

The CHAIRMAN. That is, instead of artificially transporting water for distribution, you are undertaking to artificially remove the water from the submerged lands?

Doctor TRUE. Yes; and our drainage investigations were the outgrowth of our irrigation investigations, because in many sections of the West the people at the outset were so much interested in trying to get the water onto the land that they forgot that good agriculture requires that the water also should be conducted off the land, and serious results ensued from that practice. There are considerable areas in the irrigated districts of the United States which have been so swamped by putting water on and providing no way to get it off that serious evils have arisen.

The CHAIRMAN. Then, is the drainage of which you speak and as to which you investigate a necessary corollary of the irrigation proposition?

Doctor TRUE. No, sir; but it was to begin with. But owing to the success of irrigation projects in the West, both by the Government and under private auspices, great interest has been excited in this country in regard to the reclamation of land, so that it has occurred to many people that if it is a good thing to reclaim land by irrigation it is an equally good thing to reclaim it by drainage, and therefore they have set in motion a movement to have the matter of the drainage of lands generally investigated throughout the country, and they have called upon the Department to aid in that work.

(Witness: True.)

The CHAIRMAN. Does that mean taking large submerged or semi-submerged areas for the purpose of removing the water naturally standing thereon?

Doctor TRUE. Yes.

The CHAIRMAN. In relation to the drainage, so far as it may have been originally a corollary of irrigation, is there any occasion for artificial drainage where the land affected only receives the amount that is necessary, which has been demonstrated by experimental work such as you have described?

Doctor TRUE. Yes; because that water once put on will either stay there or run off.

The CHAIRMAN. If there is a surplus on the ground, would it not look as though too much had been introduced?

Doctor TRUE. That is likely to be so, but not necessarily. For example, in California, near the city of Fresno, which is in the great raisin region, they constructed an irrigation system, and in doing so they used as a part of that system a natural drainage basin, with the idea that they would not need drainage. They have gone on there for a number of years and have produced wonderful results, building up that great raisin industry and making the city of Fresno. But after a time it began to be discovered that the lack of drainage was bringing up alkali salts, and more than that, raising the water table of that whole region. Originally the water table was a considerable number of feet below the surface; but in recent years, when people are irrigating generally, the water table may be within a foot or two of the surface, and the water may remain for considerable periods.

Now, that water alone, if it brought up no injurious salts, would ruin the roots of the vines and orchard trees in that district, and considerable areas of land about Fresno have already been seriously injured and are no longer productive. In that district people had been brought up to think that what they wanted was irrigation, and that that would produce these beneficial results, and when the people who had the farms that were being ruined began to cry out, they were looked upon as disturbers of the peace and very little attention was paid to them, with the result that it was impracticable to secure the necessary State legislation for a drainage system or to put into effect any general system of drainage in the Fresno district.

As difficulty increased our Department was called upon to determine the method of getting rid of the water, and so we went out there and made an investigation of the subject and determined in a general way the plan which they ought to adopt for a drainage system for that district. Encouraged by that and by us, they went to the State and got the necessary legislation; but they have not even yet gotten together on the proposition.

The CHAIRMAN. What method did you suggest—the discharge of this water into some lower level?

Doctor TRUE. Yes; we showed them in a definite way how they might make a drainage plan for that area, so that they might drain out the water.

The CHAIRMAN. That was simply an engineering proposition?

Doctor TRUE. Yes; it was an engineering proposition. It involved, however, the study of certain special conditions.

(Witness: True.)

The CHAIRMAN. What was there to that except just simply a question of engineering and finding an outlet through which or into which that water could be discharged, with the proper network of drainage to carry the water off? What was there more than that?

Doctor TRUE. It was essentially that.

The CHAIRMAN. Yes; that is a purely hydraulic engineering proposition; is it not?

Doctor TRUE. Yes; a combination of engineering and irrigation problems.

The CHAIRMAN. You say there were other factors.

Doctor TRUE. I mean by that this, that persons who are familiar in a general way with drainage propositions in the East would not understand, very likely, how to manage a proposition of that sort, because of the nature of the soil and the general conditions. So that it requires a kind of broad expert knowledge which very few ordinary engineers would possess. But it is an engineering proposition.

The CHAIRMAN. I should not think they would have any difficulty in finding engineers out there that could cope with a proposition like that without any trouble.

Doctor TRUE. Well, the local people did not seem to be able to manage it.

The CHAIRMAN. Take that particular instance. That did not involve experimentation at that point, did it?

Doctor TRUE. Well, the working out of certain definite things with regard to soil and conditions of that kind. If we can make that proposition successful, there are other areas in California which can be similarly treated. It will not be our business to go through California and do that sort of thing, but we feel that we are justified in going in and determining in an experimental way in such cases what can be done, and giving the people a demonstration of that. Our work on drainage is conducted on the general theory that the doing of such work to a certain extent by way of experimentation and demonstration and the publication of the results of such work will help to develop the agriculture of the country.

The CHAIRMAN. There is no doubt about the fact that the proper application of water by irrigation, and also the proper denuding of a tract of land of the surplus water on it, is unquestionably beneficial to the fertility of the areas affected.

Doctor TRUE. Yes.

The CHAIRMAN. There is no doubt about that as a general proposition. But with reference to your Fresno proposition, did you make any experiments on the Fresno proposition, or was it simply a visit to the territory and an examination of the topography, with suggestions as to what could be done as an engineering proposition?

Doctor TRUE. Well, we did this kind of work: We established certain wells, if you may call them such, to determine the relation of the irrigation plant to the rise of the soil water.

The CHAIRMAN. Of the water table?

Doctor TRUE. Yes, of the water table; so as to know accurately what conditions we would have to meet in the establishment of the drainage system.

(Witness: True.)

The CHAIRMAN. That enabled you to get your levels?

Doctor TRUE. Yes.

The CHAIRMAN. That was the purpose of your experiment, was it not?

Doctor TRUE. Yes.

The CHAIRMAN. I do not suppose you found any natural conditions there which enabled you to ascertain what the original water table was before the irrigation began?

Doctor TRUE. Probably not—the original water table.

The CHAIRMAN. So as to be able to tell what the accumulation of water had been as the result of the irrigation work?

Doctor TRUE. No, sir; I do not think we went into that. We did not need to, in that case.

The CHAIRMAN. I suppose as a scientific proposition it would be necessary for you to assume at least that the water table was naturally considerably below that; otherwise you would not be able to conclude that there was any surplus water on the land?

Doctor TRUE. We determined, of course, the lowest level in the rise of the water at a certain period, but as to whether that was the original level, I do not remember whether we took up that point.

The CHAIRMAN. Just give us your largest drainage proposition in which your Bureau has been engaged as differential, now, from the irrigation proposition; because I understand that the drainage proposition, so far as irrigation is concerned, is peculiar to the irrigation proposition and is dependent thereon. Am I right about that?

Doctor TRUE. Yes.

The CHAIRMAN. This is an artificial condition created by the irrigation work?

Doctor TRUE. Yes.

The CHAIRMAN. Which has to be taken care of and remedied by some other artificial means; that is, that kind of drainage?

Doctor TRUE. Yes. One project that we are following up is in the Red River Valley in Dakota. There there is a large area of land which needs drainage, but where the drainage is difficult, partly because of the nature of the soil, and partly because of the great depth to which the soil freezes, and it has never been determined whether it was feasible to tile-drain that land to any considerable extent. We have taken up that proposition, and are carrying on an experiment in connection with the agricultural experiment station of North Dakota, at Fargo, and putting in a series of tile drains at different levels and determining the outflow, and the conditions as to the drains stopping up with silt and things of that sort, and this matter of the working of the drains after the ground has been frozen to such a great depth.

The CHAIRMAN. That is underdrainage?

Doctor TRUE. Yes. If we can work that out successfully, that will lead to the improvement of a large area of very fertile land.

The CHAIRMAN. How many acres or how many square miles?

Doctor TRUE. I do not know that I can say, but it would be hundreds of thousands of acres, I should say.

The CHAIRMAN. Is that Government land or private land?

Doctor TRUE. Private land.

(Witness: True.)

Mr. SAMUEL. Did the owners of this land contribute anything to the expense of that?

Doctor TRUE. I do not remember that they have done so in this particular case. That has been carried on in cooperation with the station and the counties.

The CHAIRMAN. They received the benefit of it, did they not?

Doctor TRUE. Yes.

The CHAIRMAN. How long have you been engaged in that investigation or experiment in connection with the Red River Valley?

Doctor TRUE. This is the second season.

The CHAIRMAN. Have you gotten any results so as to be able to tell what you can accomplish?

Doctor TRUE. No, sir. The first season was spent in a general survey and preparation of the land, and then this last fall—this last summer and fall—we got in the tiles, but we have not been able to make definite observations.

The CHAIRMAN. You say that freezes deep. How deep?

Doctor TRUE. Six feet, probably.

The CHAIRMAN. How deep do you put your tiles, your drains?

Doctor TRUE. My recollection is that they are from 3 to 6 feet, but I may be mistaken about that. I myself do not follow up the details of this work so as to be able to give you the figures very well.

The CHAIRMAN. How long has your office been engaged in doing this experimental work in connection with the drainage?

Doctor TRUE. Four or five years.

The CHAIRMAN. Has any appreciable amount of territory been drained as the result of the experiments made by your department?

Doctor TRUE. Yes; considerable areas have been drained, especially in the arid region.

The CHAIRMAN. In the arid region, of course, the drainage is a corollary of irrigation?

Doctor TRUE. Yes.

The CHAIRMAN. But I am speaking of where you find areas naturally more or less submerged with surface water, which has to be removed in order to make the land tillable.

Doctor TRUE. That work is more recent, and so far has not produced very many practical results, because the work has not gone on long enough, but I can give you one example that occurs to me now. We made an examination of a region near the city of Charleston, where there are very fertile lands that were once very productive, but which have largely gone out of cultivation, owing to the difficulties of drainage. The people there were quite discouraged about it. We made an examination there and found that a feasible plan could be worked out, and the people have taken it up and have drained considerable areas in the vicinity of the city of Charleston. My recollection is that they have drained now about two of their parishes, a parish being like a township, and that they are going on to do work in the third.

One result of that work has been that not only the productiveness of that area has been increased, but its healthfulness as well.

The CHAIRMAN. That is, you have eliminated malaria to a large extent?

(Witness: True.)

Doctor TRUE. To a large extent; yes, sir. As another result of that work, the region has contributed funds to establish an agricultural experiment station for that coast country. The agricultural station now is in the hill country, and experiments made up there—field experiments—are not of much value to determine what could be done in the low country, so that the people have got together and set aside a tract of 300 acres—we are helping them to prepare that and drain it—and expect in a short time they will have a good experiment station there for that region. Now, that is very much needed, because there is a very large area along that lowland region of the South which for many years has been going back to wilderness. The large areas that were formerly devoted to rice culture have gone out of cultivation, and other regions devoted more or less to other crops have become unhealthful. People do not like to live in them, so that all around the city of Charleston and all along that coast there are large areas which can be reclaimed with a proper drainage system. We think that our work will encourage those people to get together and adopt drainage laws and regulations for large areas and make them productive.

The CHAIRMAN. What did you do down there besides making local experiments? You took a certain area, I suppose, and made an actual experiment by constructing the drains for the purpose of seeing what the result would be?

Doctor TRUE. That work was done under our general direction, but by the local people. We went down there and examined the region, and through the help of our experts determined, as we thought, what would be a good system, worked it out in some detail, so that it could be taken up by the local people, and they took hold of it and made a drainage system.

The CHAIRMAN. Then they did the work of the actual construction?

Doctor TRUE. Yes.

The CHAIRMAN. Do you furnish them with a plan of the territory, with your scheme of drainage laid out on the plan?

Doctor TRUE. Yes.

The CHAIRMAN. Blueprints and things of that sort?

Doctor TRUE. Yes, sir; that is my understanding.

The CHAIRMAN. So that when you got through with your experimental work all these people there had to do was to apply your plan in its details to the territory by the actual construction of the drains in accordance with your instructions?

Doctor TRUE. That is the way I understand it.

The CHAIRMAN. That is the way you understand it?

Doctor TRUE. Yes.

The CHAIRMAN. That is, the Government did not construct the drains, but simply gave these people the information on the basis of which they could proceed?

Doctor TRUE. Yes.

The CHAIRMAN. Has that been a success?

Doctor TRUE. Yes, sir; so far as it has gone.

The CHAIRMAN. In those two parishes?

Doctor TRUE. Yes.

(At 1.15 o'clock p. m. the committee took a recess until 2 o'clock p. m.)

(Witness: True.)

AFTER RECESS.

The committee reconvened at 2.45 o'clock p. m., Hon. Charles E. Littlefield (chairman) in the chair.

The CHAIRMAN. What other experimental work in connection with the experiment stations is your Bureau doing outside of the irrigation and drainage problems?

Doctor TRUE. We are working on human food and nutrition.

The CHAIRMAN. Why is not the irrigation and drainage proposition practically the same kind of investigation pursued by the Bureau of Soils?

Doctor TRUE. They deal with the soil itself, not with the water.

The CHAIRMAN. They deal both with the physical and chemical character of the soil?

Doctor TRUE. Yes.

The CHAIRMAN. And the adaptation of the soil to various kinds of plant life?

Doctor TRUE. Yes.

The CHAIRMAN. Is not this substantially the same subject?

Doctor TRUE. No, sir.

The CHAIRMAN. If not, what is the differentiation?

Doctor TRUE. We deal largely with what may be called the rural engineering side of it. That is, we do not make analyses of the soil or study its physical characteristics. We deal with the questions of the relation of water to the soil.

The CHAIRMAN. For instance, will your Bureau go over a certain territory with reference to the question of rendering soil fertile by the introduction of water and then will the Bureau of Soils, either before or after you, go over the same territory with reference to determining the condition of the soil?

Doctor TRUE. They may do that in certain cases. They would examine the soil itself with reference to its physical and chemical constitution particularly.

The CHAIRMAN. Is it not practicable to have one set of men do both things?

Doctor TRUE. I do not think so.

The CHAIRMAN. Why not?

Doctor TRUE. Because the work is in two different lines. We do not employ physicists or chemists in our work. We employ men primarily who have had some engineering training and special experience in irrigation and drainage.

The CHAIRMAN. Is there any special difficulty in those men acquiring the ability to make the physical and chemical examination of the soil?

Doctor TRUE. No, sir; but then they would have to make special studies. There is just as much differentiation between those two lines of work as there is between the soil and the plant work. A botanist, of course, might study soils as well, and make the examination of the soil at the same time he was examining the plants.

The CHAIRMAN. What reason is there why a competent man, who by education has acquired the information, could not do all of those things?

(Witness: True.)

Doctor TRUE. Because that is a state of things with reference to scientific work that is entirely outgrown. There was a time when the colleges and scientific institutions would employ one man to take charge of natural science. Then they divided it up into several sciences. Now they subdivide the sciences, and have specialists for different purposes. The same thing has gone on with reference to agricultural investigations. Years ago the Department employed men of more general attainments than the men employed to-day. To-day we are seeking specialists who devote themselves to particular lines of work, and try to make themselves thorough in those lines. The same movement is going on, of course, in commercial lines and in the legal profession, and everywhere.

Mr. SAMUEL. Does the Bureau of Soils make any investigations as to the amount of moisture or water required in the land to produce certain results?

Doctor TRUE. They may study the soil moisture, as it is called. Of course in every soil there is a certain amount of moisture.

Mr. SAMUEL. In certain parts that moisture is lacking, and you produce that moisture by irrigation?

Doctor TRUE. Yes.

Mr. SAMUEL. Why could they not ascertain the amount of moisture necessary, and have the private parties do the irrigating, instead of the Government doing it?

Doctor TRUE. It would be possible, I presume, if they had men trained along those lines, to do it. But that would not be making a thorough study of the subject of irrigation in the sense in which we are making it.

Mr. SAMUEL. These experiments that you are making in developing certain lines of investigation redound to the interest of the private owner of the land?

Doctor TRUE. Yes.

The CHAIRMAN. At Government expense?

Doctor TRUE. Yes; but that is an incidental feature of the investigation. The same might be said of the work of the Department, in many lines. But we are doing it so that the results which we obtain may, through our publications, and otherwise, redound to the general benefit. Otherwise, I do not think we have any function to perform along those lines.

The CHAIRMAN. Does not the very large proportion of the utility of your work redound to the benefit of the owners of the lands immediately affected by the results?

Doctor TRUE. Taking the benefit as a whole, that is a very small part of it.

The CHAIRMAN. The benefit to the country as a whole must come through those people, must it not?

Doctor TRUE. Yes. Because we have to operate on land, and in most parts of the country it is necessarily on private land.

The CHAIRMAN. But the work that you do in relation to one enterprise does not produce any effect on the country at large except as it improves the condition of the men interested in that enterprise, does it?

Doctor TRUE. We do not undertake any enterprise which will benefit only a single owner.

(Witness: True.)

The CHAIRMAN. Take a number of owners; they are a number of private individuals.

Doctor TRUE. Yes.

The CHAIRMAN. If you irrigate a certain area, the only direct benefit that is received from the irrigation of that area is the benefit received by the owners of these lands irrigated, is it not?

Doctor TRUE. Yes, sir; but I do not see that that is essentially different from what the Department does when it goes out and experiments with certain plants.

The CHAIRMAN. I can not say that I do, very much, except for this. I suppose it is highly differentiated from the plant proposition, because an experiment in relation to a plant may be availed of by people all over the country.

Doctor TRUE. That is true in the case of only a very few plants; hardly any plants.

The CHAIRMAN. Where it is a fact that the experiment is simply for the benefit of a few individuals who are cultivating that plant, the truth is, I suppose, when you get down to it, that a great deal of the work in the Department of Agriculture is in a sense private in its character in that the benefits that come from it are benefits to individuals.

Doctor TRUE. Yes.

The CHAIRMAN. That does not decrease its utility, but it may illustrate its character?

Doctor TRUE. Yes.

The CHAIRMAN. So that in the case of your irrigation and drainage proposition, whatever you may do in that line does not communicate itself to the country at large except through those people who are directly interested in the lands affected; is not that right?

Doctor TRUE. It is communicated through our publications.

The CHAIRMAN. Yes; but that is of very trifling value, I take it, as far as other sections are concerned—that is, each irrigation proposition is peculiar to itself, is it not?

Doctor TRUE. There are certain features which are peculiar, but there are general features which may be of wide application. Now, one result of our irrigation investigations is this, that the people in California have come to learn about the methods of irrigation that are carried on in Colorado and other States, with the result that there are modifications in practice in California of the methods used in Colorado, and there are modifications in Colorado of the methods which are being practiced in California. The work that we publish in relation to California is of use to the people of Colorado.

The CHAIRMAN. Yes; but that does not necessarily involve your work on particular experiments, does it?

Doctor TRUE. Yes, sir; certainly. We get the results in that way. Then, another thing: You must remember that there is a very large movement of population into the arid and semiarid regions, due a great deal to the excitement that has been raised by the reclamation work of the Government and also by the notion which has been spread abroad very widely that a large portion of that region may be used without irrigation by a system of dry farming. Now, those people go out very largely from the humid regions where they have

(Witness: True.)

had no experience with irrigation at all, and we can go in there with the information which we have gained in our work and help those people to avoid possible blunders.

One feature of our work which is developing recently is this: We believe that the movement of population into the semiarid region particularly is being accompanied with great risks to the people going there, because they are trusting to the experience of exceptional seasons with reference to the production of crops. That is, in all that region in the last three or four years there has been an unusual rainfall, and the lands there are being advertised as lands which can be cropped without irrigation under a system of dry farming. If there is anything in meteorological records running over a considerable period of years, we may draw the conclusion that climate is fairly uniform. That is, it is subject to a certain range of fluctuations, and there may be three or four years when there is a great deal more rainfall, but on the average the rainfall will not differ greatly.

The CHAIRMAN. But that matter is not within the scope of your Bureau, is it?

Doctor TRUE. No, sir; I am simply speaking of that. We are trying to show what may be done with a limited supply of water in connection with a dry farm—trying to work out a feasible plan and determine the cost of the necessary plant and of its operation, etc. We are doing that because we think that in a short time there will come dry seasons and the people will get discouraged again and we shall have a repetition of what happened in the case of Kansas and Nebraska and other States years ago. There, people gave up in despair, and went off because they could not raise crops. But if we can show that a man can irrigate with a limited supply of water that he can get there from a small stream or from ponds of 5 or 10 acres around his home, then we will have established that he will have a complete insurance against losses and suffering in dry seasons.

The CHAIRMAN. Can you do that successfully without going on the ground and looking up every fellow's place, and advising him how to prepare for the limited supply of water?

Doctor TRUE. We have taken a few places in typical regions. At each of such places we have established a small earthen reservoir and have put up a small windmill or two, getting water either out of a small stream or by means of wells and pumps, and irrigating in that way five or ten acres of land under this reservoir. We are also planting an area of the dry land near by for comparison. In the course of four or five years we ought to have worked out completely a practical system for utilizing the limited water supply, and we ought to know the cost of the plant and the cost of operation. That kind of work is exciting a great deal of interest in that region. We have such a station near Cheyenne, Wyo., which we have been running only one season. I think more than 5,000 farmers visited that station last summer.

The CHAIRMAN. What was that from in that case, artesian wells? You say that you pumped it.

Doctor TRUE. No; from soil water supplied by streams rising in the hills and sinking in the sand of the plains.

(Witness: True.)

The CHAIRMAN. You say that in connection with these experiment stations you examine food with reference to getting at its nutritive qualities?

Doctor TRUE. Yes, sir.

The CHAIRMAN. Does any other bureau of the Department of Agriculture treat on that same line, or do any work on that line?

Doctor TRUE. The Bureau of Chemistry has dealt with questions relating to food, but with special reference to the amount of adulteration and the effect of adulteration. We have marked out for ourselves a special line of investigation dealing with the normal individual and the ordinary normal kinds of food. We do not go into questions of adulteration at all, nor do we study pathological questions. We are endeavoring to determine the laws and principles governing human nutrition and the exact effect of different kinds of food in the production of body tissue and energy, at the same time working the results of our investigations into such shape that they can be utilized by the agricultural colleges and schools generally throughout the country that are teaching what is commonly called domestic science, or home economics.

The CHAIRMAN. Does that involve chemical investigation?

Doctor TRUE. Yes; that involves a certain amount of chemical work; but from a physiological standpoint.

The CHAIRMAN. It is chemical analysis?

Doctor TRUE. Yes, sir.

The CHAIRMAN. Does the Bureau of Chemistry perform any analyses on the same lines?

Doctor TRUE. They make analyses of foods.

The CHAIRMAN. On the same lines on which you make them?

Doctor TRUE. No, sir; they are not studying on the same lines that we are studying.

The CHAIRMAN. But do they take the same steps in the analysis, although it may be for a different result?

Doctor TRUE. Yes.

The CHAIRMAN. Then why could not the chemist who is going through the necessary processes to reach one result, which processes are necessary to reach another result, utilize his work for both results, and thus make an economy in expenditure?

Doctor TRUE. We do that to a considerable extent. That is, where the Bureau of Chemistry has made analyses of foods and published the results we use those in our investigations. Analytical work is only an incidental feature of our investigations.

The CHAIRMAN. Yes; but they must make a great many analyses where they do not publish the results.

Doctor TRUE. I do not know that they do. They may make a certain number, but they are supposed to publish whatever is of value.

The CHAIRMAN. Then if you find that they have made an analysis of a certain kind of food, you do not make that analysis over again? You take that as a basis and go on from that as a basis?

Doctor TRUE. Yes; as far as possible. Let me give you some examples of the work that we are doing, that you may see what it is. This work has been going on for thirteen or fourteen years. It grew out of some special investigations on foods and human nutrition that were made by Professor Atwater at Middletown, Conn. He was

(Witness: True.)

interested in the development of an apparatus to determine with exactness what energy was produced by food; and the Department, when it received its appropriation, took up that subject and helped Professor Atwater develop that apparatus. In that way we have devised the most perfect form of apparatus for that purpose that has ever been devised.

This apparatus and the experimental methods involved in its use are applicable not only to the study of the human being in relation to his food, but also to the farm animal in relation to its food. The latter phase of this work has been taken up by Professor Armsby at the State College of Pennsylvania, and on the basis of our work on human nutrition he has devised an apparatus like our respiration calorimeter for experiments with large animals. He has a machine which is big enough to take in a whole ox, so that he can study it. Now, in that way we can tell better than ever before what the exact effect is in the production of energy of different kinds of food, and that down to quite a nice degree of fineness. The apparatus we have at Middletown is so delicate that if a man who is in it turns over in his sleep or sneezes the apparatus will record the energy expended in that act.

Mr. SAMUEL. Could that apparatus tell how many times you rolled over?

Doctor TRUE. It might tell that, because it would record the disturbances.

Mr. SAMUEL. The amount of energy expended?

Doctor TRUE. Yes; you would have that in the record. There are recording instruments, and the observer can tell that there had come in disturbing elements. I suppose you could not always tell whether a man was turning over in his sleep, but you would know that certain irregularities in the record were due to slight movements.

Mr. SAMUEL. If a man were to get up and go through a physical-development system of exercise like calisthenics, like the Swedish system exercises, would the amount of energy that he expended in those movements be recorded by this machine?

Doctor TRUE. Yes; we have done that very thing. We have made experiments to determine how much muscular energy is expended in certain kinds of work and what the relation of that is to the amount and character of food a man consumes. We have, for example, had a professional bicyclist go into this machine, where we have a stationary bicycle arranged on which he sits and operates the bicycle for hours at a time, and the machine records the amount of energy which he expends in that way; then we get the data regarding what food he has taken and digested. We also study whatever comes off by way of respiration. All the air that goes into that apparatus is carefully measured when it goes in and when it comes out, so that in the end we have a complete record of what the food has done in the production of energy of a certain definite kind, as in running a bicycle. We are applying that to different foods and combinations of foods.

The CHAIRMAN. How long does an experiment of that kind last? In other words, how long does a man run the bicycle?

Doctor TRUE. He may run it for eight hours a day, or more.

(Witness: True.)

The CHAIRMAN. Is that continuous work, except for an intermission for lunch?

Doctor TRUE. It may be. These experiments are carried out for various periods ranging from one day to two weeks, a man staying in the apparatus all the time and sleeping there.

The CHAIRMAN. Do you get uniformity of physical exertion from men under those experiments?

Doctor TRUE. Oh, yes; from a professional bicyclist you can get quite uniform action. Then we have tried to see if we could determine the relation of mental work to food.

The CHAIRMAN. Right here, is this experiment you have just spoken of a utilitarian proposition? Do you get results that are of practical, material, commercial value?

Doctor TRUE. Yes.

The CHAIRMAN. Or is it simply a scientific investigation?

Doctor TRUE. No, sir; the bicycle is only a convenient means of performing the work. Our investigation is concerned with the work produced in relation to food supplied. That is a basis for the determination of the amounts of food which persons of different occupations should eat. The results are being taken up by the schools and used in their instruction, both in the medical schools and in colleges and schools of various kinds.

Mr. SAMUEL. Are the physiologists of the agricultural colleges carrying on investigations along those lines also?

Doctor TRUE. Thus far nobody in this country has had an apparatus of that kind. The Carnegie Institution has cooperated with us to a certain extent, but they have been more particularly interested in pathological questions. They are going to extend that work.

Another class of work is illustrated by that which we have been doing at the University of Maine. There we have been making a series of digestion experiments to determine the completeness with which different foods are digested. Considerable question has arisen in a practical way recently as to the digestibility of ordinary wheat flour as compared with the coarser forms of flour and those breakfast foods which are now so common. To determine that question we have made quite a long series of digestion experiments with human subjects at the University of Maine and at the University of Minnesota, having two investigators so as to check the experiments, and the results have been published. The general result is this, that the ordinary flour is more thoroughly digested than the coarser foods, but the various wheat preparations are sufficiently digested to be good foods.

The CHAIRMAN. That is to say, a man gets more nutrition out of the ordinary flour than he does out of the prepared foods, per pound?

Doctor TRUE. Yes; because the ordinary flour is very completely digested, whereas the coarser foods have in them more of what is ordinarily called the bran; and however that may be prepared, if it is not taken out, it is not so thoroughly digested. Those coarser foods may serve a very useful purpose. If a man has slowness of digestion, they may increase the rapidity of the digestion, but in the final result, pound for pound, he will not get quite as much out of the coarser preparations of wheat as he will out of the fine.

The CHAIRMAN. What is the difference in the percentage of energy, or have you as yet reached results that will enable you to state that?

(Witness: True.)

Doctor TRUE. We have stated that, but I do not know that I can state it offhand with any definiteness.

The CHAIRMAN. Is it a relatively small percentage?

Doctor TRUE. It is not very large. My recollection in a single instance is this, that 13 ounces of pilot bread is the equivalent of 16 ounces of, we will say, shredded wheat.

The CHAIRMAN. It has a little over 20 per cent advantage then?

Doctor TRUE. Yes; in that particular case. That, of course, will vary with the kind of preparation.

The CHAIRMAN. Yes; but in that particular instance there is a little over 20 per cent advantage in favor of the pilot bread. That is rather a concentrated form of wheat?

Doctor TRUE. Yes. That has come up lately, I understand, in a practical way. The War Department has been considering the question of a ration for the troops in the Philippines, and it has been urged that this shredded-wheat preparation might be used in place of the ordinary cracker or biscuit.

The CHAIRMAN. How long have you been prosecuting your investigations into food products in reference to their nutritive value?

Doctor TRUE. Thirteen or fourteen years.

The CHAIRMAN. How many food products has the Department examined in that time and settled their relative values and stated what they are?

Doctor TRUE. We have worked principally with cereal products, meats, and fruits—a certain limited number of fruits—and some nuts.

The CHAIRMAN. That is, cereal products, and meats and fruits and nuts?

Doctor TRUE. Yes.

The CHAIRMAN. How many different kinds have you demonstrated the nutritive qualities of during that fourteen-year period?

Doctor TRUE. I do not know that I can make any definite reply to that. Quite a considerable number.

The CHAIRMAN. What I wanted to get an idea of was this: How many men have you had on that kind of work for thirteen or fourteen years?

Doctor TRUE. A number of investigators each year, which I should say would average about half a dozen.

The CHAIRMAN. You have had six men working for thirteen or fourteen years? I want to have this examination show, if I can, the concrete results you have been able to accomplish in that particular line.

Doctor TRUE. Of course those six men would not include the temporary assistants.

The CHAIRMAN. The temporary assistants would be in addition to the six you have regularly engaged in the work? You would have other men, you say?

Doctor TRUE. Yes.

The CHAIRMAN. So that if you based it upon the time occupied by the six, that would be the minimum of work?

Doctor TRUE. Yes; but of course the different experiments have not gone on throughout the entire year. Our arrangements have been with the agricultural colleges and experiment stations largely; they

(Witness: True.)

would put men on this for a limited period and take them off, and it is therefore difficult to give you an exact estimate.

The CHAIRMAN. Have your six men been occupied during thirteen or fourteen years practically all the time making these nutritive food investigations?

Doctor TRUE. No, sir; these six men are not employed all the time. I did not mean that.

The CHAIRMAN. What portion of the time are they employed?

Doctor TRUE. It would be difficult to answer that very definitely. We have about that number in centers of investigation. Take the University of Maine as an example. We are paying there for the work that is done a thousand dollars.

The CHAIRMAN. To whom are you paying that, to a university man, or are you paying out a thousand dollars in salaries to United States employees?

Doctor TRUE. That is being paid to one man.

The CHAIRMAN. One of your inspectors?

Doctor TRUE. No, sir.

The CHAIRMAN. One of the State inspectors?

Doctor TRUE. One of the State station men. But that, of course, does not pay his entire salary. The arrangement there is that the experiment station shall give us laboratory facilities and the use of its apparatus and such assistance as we need to complete a certain series of experiments. Now, that will take, in the course of a year, three or four months.

The CHAIRMAN. That is, three or four months this man may be engaged in experimental work?

Doctor TRUE. The work goes on during the year, but is equivalent to three or four months of continuous work. The man in charge gives it such attention from day to day as may be necessary.

The CHAIRMAN. But during that time he would not be confined to one particular subject of experimentation, would he?

Doctor TRUE. He might be. This year we are making a long series of digestion experiments with reference to the nutritive value of corn and corn products. Now, this man will follow that work up with the aid of perhaps one other man, an assistant, and make a long series of digestion experiments.

The CHAIRMAN. That is, during the period of three or four months' time, you say?

Doctor TRUE. Yes.

The CHAIRMAN. And for that time you pay him a thousand dollars, as I understand you?

Doctor TRUE. Yes; but he supervises the work during the year.

The CHAIRMAN. Is not that pretty good compensation for that time?

Doctor TRUE. I do not think so.

The CHAIRMAN. That would be at the rate of about \$4,000 a year?

Doctor TRUE. Yes; we need that kind of men.

The CHAIRMAN. At the same time I suppose this man is an employee of the University of Maine—that is, a professor in the school?

Doctor TRUE. Yes.

The CHAIRMAN. So that he is getting his ordinary professor's salary and this in addition at the rate of three or four thousand dollars a year?

Doctor TRUE. Yes. My idea is that he gets \$2,500 from the State.

The CHAIRMAN. Two thousand five hundred from the State and this \$1,000 extra?

Doctor TRUE. Yes.

The CHAIRMAN. That twenty-five hundred dollars is in addition to what he gets from the Government?

Doctor TRUE. Yes.

The CHAIRMAN. As to the time involved, how long did it take your Bureau to make this investigation as to the shredded wheat and pilot bread for the purpose of ascertaining the relative nutritive values of those two articles?

Doctor TRUE. I can not tell you that. This matter, of course, is under my general supervision, but so far as the detailed experiments are concerned I can not pretend to have any detailed information. These two materials were studied at different times.

The CHAIRMAN. Would more than one man be engaged in an experiment of that kind?

Doctor TRUE. Usually more than one.

The CHAIRMAN. While they were engaged in that experiment would they be discharging other duties?

Doctor TRUE. They might be; yes, sir.

The CHAIRMAN. Is it possible that just to oversee that experiment would take up their whole time? Of course I am perfectly unfamiliar with the whole thing, but I want to get a notion of the line of work they do, and what it is, and whether it is likely to take up their whole time. I want to see whether your Bureau is working fast or slow.

Doctor TRUE. Such work you can not manage as you would manage a factory. You have to deal with the human subject and varied materials, and whether you would turn off just so much work each day or not would depend on a variety of conditions.

The CHAIRMAN. Is there anything that would hinder a man from supervising or conducting a half a dozen experiments along those lines?

Doctor TRUE. No; if he had the time.

The CHAIRMAN. Would he not have the time? What is there about it that would take up his time—would prevent his conducting half a dozen experiments in the matter of nutritive value of foods?

Doctor TRUE. He has to go through with something of a regular course. He has to get his subjects, and they have to eat at certain times. The nutritive value of what they eat has to be determined, and the amount consumed; then their feces have to be collected and prepared for examination and finally examined; finally, a careful calculation must be made to determine what each one has actually digested.

The CHAIRMAN. What is the reason that a man can not conduct half a dozen experiments at the same time?

Doctor TRUE. He can.

The CHAIRMAN. What I want to know is, do they? You say you have had six of these gentlemen, who are inspectors, or—what do you call them?

Doctor TRUE. They are investigators.

(Witness: True.)

The CHAIRMAN. You have had six of them, and what I wish to get at is whether there is any reason why one of these men should not be physically able to conduct successfully, say, half a dozen experiments at the same time and look after half a dozen men undergoing these processes?

Doctor TRUE. No, sir; I do not think so. He might have under his supervision several men digesting food, but he could not conduct several lines of similar studies at the same time.

The CHAIRMAN. Do they, as a matter of fact? Do your investigators have charge of as many men of that sort, all of whom would be testing different materials, or do you have several subjects on the same material for the purpose of having a wider basis for a summary?

Doctor TRUE. What we have tried to do is to specialize in that line of work just as we do in other lines. The man at the Maine experiment station has been making a specialty of the cereals.

The CHAIRMAN. Corn?

Doctor TRUE. Yes, sir. He is working with corn at present, and he has made himself very familiar with cereals, and his work, therefore, has been largely confined to investigations along that line.

The CHAIRMAN. How many different corn products has he been investigating?

Doctor TRUE. Corn meal—white meal and yellow meal; then there are different grades of fineness of the meal and corn flakes and a number of commercial preparations.

The CHAIRMAN. Outside of your corn meal, both white and yellow, and of different degrees of fineness, the only things that he has for investigation are the prepared foods that have their bases on corn?

Doctor TRUE. Yes.

The CHAIRMAN. Does he conduct all those investigations at the same time? For instance, is he examining all those products during the same three-months' period, or does he only take one of them and run through the period with it, and a little later run through with another?

Doctor TRUE. We make up a programme for this man to cover; a certain amount of work which we think he can fairly do under the circumstances under which he works, for the given amount of money.

The CHAIRMAN. In this instance of corn, is it a fact that he took the subject of corn meal?

Doctor TRUE. Yes; corn meal of different sorts.

The CHAIRMAN. And devoted his time to the investigation of that and that alone during this period of three or four months.

Doctor TRUE. That is my recollection.

The CHAIRMAN. Why was it not perfectly feasible for him at the same time to have, going on with that, experiments covering these three or four or five different corn products? Is it credible that his whole time could have been devoted to the corn-meal proposition alone? Of course, you are more familiar with the detail than I am.

Doctor TRUE. Yes, sir; he devoted his time to that investigation. That work involves a very considerable number of digestion experiments, involving chemical and other examinations of different foods and rations, and feces. A man might supervise that with a force of

(Witness: True.)

assistants, but, of course, every assistant that is taken on involves an increase of salary and other expenses. There are the expenses of the men who are subjects, and the chemical and other necessary supplies. What we do is to figure out, as well as we can, what a man can do with a given amount of money, and we expect him to do that amount of work and to make a report on it within a reasonable time. Of course, besides making the experiments he has to make all the calculations in relation to it, and then write the matter up for publication.

The CHAIRMAN. I suppose the writing up of the subject-matter of an examination like that does involve the consumption of a great deal of time.

Doctor TRUE. Making the calculations and writing them up is a time-consuming task.

The CHAIRMAN. The making of the calculations? Are we to understand that there are so many chemical examinations on one individual with one article that it takes about all the time of a man during the time that experiment is going on? Of course if that is a fact, that shows a sufficient reason why one man could not do both of these things. Of course one man can only do what he can.

Doctor TRUE. Yes; that is so.

The CHAIRMAN. How many chemical examinations would ordinarily have to be made during the time, under those circumstances?

Doctor TRUE. I could not answer that.

The CHAIRMAN. Is not that a set proposition? Do you not make an analysis of food; and then what other analysis is there except the analysis of the feces and of the urine?

Doctor TRUE. Those are the two.

The CHAIRMAN. Do they analyze the urine?

Doctor TRUE. In some cases.

The CHAIRMAN. That depends upon the character of the food being tested?

Doctor TRUE. Upon the character of the study.

The CHAIRMAN. Then there are three examinations?

Doctor TRUE. My difficulty is this; that I do not follow up the details of this work sufficiently to keep in mind matters of that sort.

The CHAIRMAN. I see; then you have to depend on some one else to look out for that?

Doctor TRUE. Yes, sir.

The CHAIRMAN. Have you anyone who is thoroughly familiar with that work as a practical operative proposition, anybody here in Washington that you could reach?

Doctor TRUE. Yes; we have an expert here who looks after the general interests of that work.

The CHAIRMAN. Who has conducted the experiments himself?

Doctor TRUE. Yes.

The CHAIRMAN. I appreciate your embarrassment now, because you have not had the direct personal charge of experiments of that sort, as I understand it.

Doctor TRUE. No.

The CHAIRMAN. We may want to examine him.

Mr. SAMUEL. Do you examine or do you experiment as to the rel-

(Witness: True.)

ative effect of eating small meals frequently, compared with three full meals a day, on digestion and nutrition?

Doctor TRUE. I do not remember that we have covered that particular point, although possibly we may have.

Mr. SAMUEL. Have you ever investigated as to the effect of fast compared with slow eating as affecting digestion?

The CHAIRMAN. That includes mastication and the generation of saliva?

Doctor TRUE. Yes; to a certain limited extent. We had in the calorimeter last year a gentleman who claimed that slow mastication and very thorough mastication will increase the digestibility of food.

The CHAIRMAN. When you say "slow mastication" do you mean mastication continued over quite a period of time—that is, not the operation of the jaws slowly, but long-continued chewing?

Doctor TRUE. Long-continued chewing.

The CHAIRMAN. When you say "slow mastication," that is what you mean?

Doctor TRUE. Yes. This man claimed that that would increase the digestibility, and that therefore a person doing that could live on a relatively small quantity of food. He was put in this calorimeter and given the amount of food which he thought he ought to have, and he went through his usual mode of eating it, and it turned out that that amount of food was not sufficient to maintain his body. He lost in body weight during the time of the experiment, and the general conclusion of our expert was that this slow mastication had no appreciable effect upon the absolute digestibility of food.

Mr. SAMUEL. Did you experiment with him eating fast on the same amount of food to see what effect it would have?

Doctor TRUE. I do not remember that that was done.

Mr. SAMUEL. That would be the only way to get at a concrete result, would it not?

Doctor TRUE. We compared him with other individuals who ate in the usual way.

The CHAIRMAN. I suppose there is a stage in connection with food where perfect mastication is reached. And is it your judgment that until that is reached you do not facilitate digestion to the fullest extent, but that mastication beyond that is of no appreciable advantage? Do I make that clear?

Doctor TRUE. Yes. But that is not quite the result. The result seems to indicate that the mastication of food in any way has relatively little effect on its absolute digestibility; that if you eat your food hurriedly, bolt it down quickly, and it goes down in relatively large pieces, the digestive apparatus will work it up, and the final outcome will be just as much energy and supply of tissue to the body as if you spent a considerable time in chewing.

Mr. SAMUEL. Does that apply to all kinds of food?

Doctor TRUE. That would apply generally.

The CHAIRMAN. That is, you would make no differentiation between meats and fruits?

Doctor TRUE. No, sir; not so far as I understand.

The CHAIRMAN. Then this notion that has prevailed with more or less persistence, that thorough mastication was necessary in order to

(Witness: True.)

maintain a healthy stomach and properly facilitate digestion, has not much foundation in fact?

Doctor TRUE. You say "maintain a healthy stomach." I am speaking simply of the absolute digestibility of the food.

The CHAIRMAN. Do you get perfect digestibility with a condition that impairs the stomach in its function?

Doctor TRUE. Yes.

The CHAIRMAN. That is a physical proposition?

Doctor TRUE. A man can live pretty well without any stomach, you know. There are such cases.

The CHAIRMAN. Does the fact, then, of digestion and the maintenance of the condition of the stomach indicate long mastication and more thorough chewing?

Doctor TRUE. The point is this, that in dealing with a healthy subject in a temporary way, you can neglect the matter of mastication. The food will be digested fully, as fully as under other conditions; but we have not shown, and do not pretend to have shown, that if you bolted your food without chewing it much that would not have a bad effect on the digestive apparatus, and after a time produce digestive disturbances. The trouble with us in discussing this subject is that in the minds of most people the term "digestion" is used in two senses, and most frequently when you and I talk about digestion we mean ease of digestion. We eat something for lunch and it does not digest well with us; we have a disagreeable time in getting rid of it, and we say that that food is indigestible. That is a common phrase. Now, that may not be so at all. The food that hurts you in going through the alimentary canal may be just as fully digested in the end as the food that goes through smoothly and quietly; so that we have to distinguish all the time, in our work, between ease of digestion and absolute digestibility.

The CHAIRMAN. You measure those things by the units of energy developed?

Doctor TRUE. Yes.

The CHAIRMAN. Rather than the impairment of the functions of the stomach in the development of the units?

Doctor TRUE. Yes.

The CHAIRMAN. And when we speak of digestion generally your suggestion is that we combine both of those factors to make up the equation?

Doctor TRUE. Yes.

The CHAIRMAN. Have your instruments demonstrated whether it is wise or unwise to have digestion take place during the shortest possible period of time? I suppose if the food is thoroughly masticated it facilitates the speed of digestion, does it not?

Doctor TRUE. It may, as regards stomach digestion; that would depend to a certain extent on the kind of food. There is also digestion in the intestines, which is very important. The coarser food is likely to stir up the alimentary canal more, and it may pass through more quickly, and yet under certain conditions it may hinder digestion. That is a subject that I would not pretend to speak on as an expert.

The CHAIRMAN. Yes. You are examining foods all the time with respect to the effects on the human and animal kind; that is, dis-

(Witness: True.)

tinguished from horses and cattle—they are all parts of the animal kingdom—but you do examine with respect to cattle?

Doctor TRUE. No; we do not have anything to do with cattle.

The CHAIRMAN. Do you make any investigations in connection with cattle?

Doctor TRUE. No, sir; the experiment stations do, but we do not.

The CHAIRMAN. You do not?

Doctor TRUE. No, sir. What I said was that our experiments with the human being have proved useful to the experiment stations in their experiments on animals because these forms of experiments can be adapted to use with animals.

The CHAIRMAN. Is not experimentation with reference to the nutrition of cattle more in the line of the Department of Agriculture than experiments in reference to mankind?

Doctor TRUE. Yes; more directly.

The CHAIRMAN. How does it happen that you are going along with a more indirect line of inquiry?

Doctor TRUE. Because it has been held that the agricultural products of the country should be utilized in the best way, and our studies have to do with the economy of consumption of foods.

The CHAIRMAN. In your investigations do you aim to determine how much food is necessary in order properly to sustain and nourish the body, or do you go as far as that?

Doctor TRUE. Yes; on the basis of our studies, and those of other investigators abroad, there have been established certain so-called standards for dietaries, so that if a dietary is desired for a particular purpose we can tell with some accuracy what amounts of food are required and how to combine those. For example, your lumbermen down in Maine eat and require a very much larger diet, a more generous diet in amounts of energy than persons engaged in clerical work or in moderate physical work. Now, we can tell in a general way how the diet should be varied according to the occupation.

The CHAIRMAN. Has it been your experience that the public avails itself of this information in determining its manner of living and the kind and quality of food products and the quantities in which they are cooked and served?

Doctor TRUE. That is being done to an increasing extent, although it is by no means the general practice yet.

The CHAIRMAN. I do not remember having known of anybody doing it; but how are you people to determine how that is being done to an increasing extent.

Doctor TRUE. It is done in a considerable number of public institutions. It is done, of course, in the Army and in the Navy.

The CHAIRMAN. That has been going on in the Army and Navy, of course, for years.

Doctor TRUE. Yes; and we have aided them, as I think they will say, to a considerable extent in determining what the ration should be.

The CHAIRMAN. Do not the best works on physiology treat of precisely that subject?

Doctor TRUE. Oh, yes.

The CHAIRMAN. And give, in connection with all the staple articles, the nutritive values?

(Witness: True.)

DOCTOR TRUE. Yes.

THE CHAIRMAN. And the relative quantity properly to be used?

DOCTOR TRUE. Yes; but those are not final figures. Those are simply the best available figures that the authors had. The more recent works on physiology are including the results of our work.

THE CHAIRMAN. That is what I was going to inquire about. Those figures are the results of scientific investigation on the part of private individuals, in the main, I suppose?

DOCTOR TRUE. In the main; or of foreign institutions.

THE CHAIRMAN. Yes. Are those utilized in your Bureau in any way in making your investigations?

DOCTOR TRUE. Yes.

THE CHAIRMAN. In what way?

DOCTOR TRUE. We have acquainted ourselves with the information given by scientific men and institutions that have worked along these lines, and are now supplementing and completing their work. It is not our desire to do anything that has been worked out.

THE CHAIRMAN. How many articles of food have you experimented with and analyzed, with reference to their nutritive values, the nutritive qualities of which have not been mentioned or stated in these physiological works?

DOCTOR TRUE. A considerable number. Take the matter of these breakfast foods that have been coming in so rapidly.

THE CHAIRMAN. Those are very recent.

DOCTOR TRUE. Yes; recent.

THE CHAIRMAN. I am speaking now of the staple articles of food. That would include the breads and meats and the commonest and best-known fruits.

DOCTOR TRUE. Probably we would find something in the books about all those; but in many cases that would not rest on the basis of any reliable or accurate investigation.

THE CHAIRMAN. Have you compared the results of your examinations with the statements that are found in these various physiological authorities?

DOCTOR TRUE. Yes.

THE CHAIRMAN. What, as a rule, do you find to be the difference, if any; or do you in the main agree with them?

DOCTOR TRUE. In some cases, I judge, we agree and in other cases we do not.

THE CHAIRMAN. Have there been any marked discrepancies in the results reached in your Bureau and the results stated in these works in connection with articles of general use and value?

DOCTOR TRUE. In some cases there have been. Take, for example, the matter of fruits, certain common fruits. We have probably obtained more data regarding those than have ever been collated before, and these data show that they have a more definite nutritive value than has heretofore been supposed.

THE CHAIRMAN. That is, their content of nutritive qualities was larger than was supposed before; that is what you mean? I am not familiar with the technique of your profession. Is that what you mean by the word "definite?"

DOCTOR TRUE. I fear that I do not make this subject quite so clear as I would if I were an expert in this particular line. I speak in somewhat general terms and do not claim to have expert knowledge.

(Witness: True.)

The CHAIRMAN. Now, have you completed in your Bureau an examination of the staple articles known as food products? That would include breads and cereals and meats and fruits.

Doctor TRUE. We have, as I understand it, finished our examination of flour and of the different forms of wheat products, and probably also of bread in the ordinary sense of that term. We are now making some investigations on the value of different preparations of wheat in combination with other things; that is, I mean such things as biscuits and cake and various other things where wheat is a certain part of the combination, but other things come in to affect the whole. That is an important matter. To illustrate: As I understand it, investigation shows that in the case of milk, if milk is taken alone, it will not be so completely digested as if it is taken in connection with bread, for example. Now, if we simply examine bread alone and milk alone we have not got the whole story.

The CHAIRMAN. No.

Doctor TRUE. We must examine the combination of bread and milk; so that we are proceeding from the more simple foods to the more complex foods in our studies.

The CHAIRMAN. That reminds me to inquire about this: Milk, butter, and cheese are, of course, familiar and staple dairy products?

Doctor TRUE. Yes.

The CHAIRMAN. And has your Bureau examined those with reference to their nutritive qualities?

Doctor TRUE. Yes; to a certain extent. Last year we made probably the most extensive investigation that has ever been made of the nutritive value or ordinary cheese. Curiously, there seems to have been very little previous work along that line, so that you might say that the nutritive value of cheese did not rest on any scientific basis. We think we have established that basis now, and have shown that cheese is a very nutritive food.

The CHAIRMAN. How does cheese compare with butter, so far as its nutritive qualities are concerned, pound for pound?

Doctor TRUE. Cheese has a higher nutritive value if it is properly made, because it contains much more of the milk. Butter contains mainly butter fat.

The CHAIRMAN. That involves the statement that cheese has more nutritive qualities than milk? Take it pound for pound, cheese has, I infer from what you say, more nutritive value?

Doctor TRUE. Yes; a much higher value, pound for pound.

The CHAIRMAN. Could you indicate to what extent its nutritive qualities exceed those of the butter? Of course it may be that you have this in your records?

Doctor TRUE. It is in the records. As a matter of fact, the result of our cheese experiments has not been put in final form, but in general I may say that butter produces energy while cheese does this and also builds body tissue.

The CHAIRMAN. Did you reach, in connection with your analysis of butter and milk, any conclusions, or develop any facts, that were not well known before you made your experiments? That is, did you add anything to the sum of human knowledge by your experimentation in milk and butter?

(Witness: True.)

Doctor TRUE. I think so.

The CHAIRMAN. Now, to what extent?

Doctor TRUE. I am speaking of cheese particularly.

The CHAIRMAN. I can see what you did in the case of cheese.

Doctor TRUE. In the other cases we have not gone into the matter so thoroughly, and we have it in mind to extend our work along that line. The butter and milk have been used only incidentally in connection with other foods in combinations.

The CHAIRMAN. You would not be able to state from memory, then, whether anything new had been developed in your investigations of butter and milk?

Doctor TRUE. The only thing that occurs to me now is what I have mentioned in connection with milk—that milk in combination with some other food, like bread, is more thoroughly digested than when taken alone.

The CHAIRMAN. Has not that been a well-known physiological fact for some time before you made your investigations?

Doctor TRUE. We have materially extended the knowledge on this subject.

The CHAIRMAN. Then that is, of course, matter that you discovered in your own experimentation. Have you stated everything that you would like to state for the purpose of clear explanation in connection with your food experimentation? If not, you may state right here anything else you desire.

Doctor TRUE. I think I have covered the subject in a general way, although I would like to emphasize the general educational value of our work thus far. As a result of that work we have published a considerable number of reports of a technical character, and also a number of popular bulletins, summarizing the results of the investigations made by ourselves and others in the form of Farmers' Bulletins. Those Farmers' Bulletins have entered into the general records published by the Department and have been published in quite large editions. They seem to be in quite large demand; for instance, those on fish, as food, and on cereal breakfast foods and on meats. Those subjects are treated in the same popular way.

The CHAIRMAN. What do you say about this proposition that there are certain articles that are especially adapted to the development of certain of the bodily functions, for instance, brain food and nerve food and muscular food? What is the fact about that? Is there any food that is especially adapted to brain development or especially adapted to nerve development?

Doctor TRUE. I do not know that there is any single food that is so adapted. We have to speak very carefully on this subject.

The CHAIRMAN. Lots of those things are being advertised, you know.

Doctor TRUE. Yes; I know that.

The CHAIRMAN. And, of course, there is a notion that certain things fertilize the brain and certain other things build up the nerves.

Doctor TRUE. Yes. In a general way I will say that those claims are not based on any sure foundation. That is one of the things we are trying to find out. We are making a set study at present of the nutritive value of the mineral elements in food. That is a difficult subject. I do not know when we will be able to work it out. But

(Witness: True.)

until that is done, these statements that are put out rest, in my judgment, on very insufficient evidence. For example, it has been a popular notion that fish is a good brain food; but we do not know that there is anything in that. We hear a great deal about the function of phosphorus in feeding the brain, and even being necessary for thought.

The CHAIRMAN. You have not been able to trace phosphorus as far as that?

Doctor TRUE. We speak very modestly about that.

The CHAIRMAN. Have you made investigations along that line for the purpose of determining the existence or nonexistence of such a condition?

Doctor TRUE. I do not believe that our investigations have really touched that. They have not gone far enough.

The CHAIRMAN. I would like to have you prepare and put into the record a statement in detail showing the number of different articles that your Bureau has examined during its existence, and settled these questions with reference to them.

(The statement follows:)

Since the nutrition investigations were instituted we have made, in round numbers, 600 dietary studies with individuals, families, and groups; 550 digestion experiments with men in normal health, and 300 artificial digestion experiments in which natural processes of digestion are approximated in the laboratory. With the respiration calorimeter 80 experiments have been made. Three hundred experiments have been made in the study of the changes and losses brought about in different food materials by various methods of cooking.

The above represents the principal lines of work which have been followed. A compilation of analyses of American food materials issued by the Office of Experiment Stations includes in round numbers, 4,000 entries. Of these, about one-half were accumulated as a result of the nutrition investigations of this Office.

In the earlier years of the work a number of analyses of food materials were made for the purpose of learning their chemical composition, but for the last ten years this has not been necessary in our studies of nutritive values, since information along these lines has accumulated so rapidly from a variety of sources that the only analyses of food required are those incidental to investigations of another character.

As a result of the dietary studies and experiments with the respiration calorimeter dietary standards have been fixed upon which show the kinds and amounts of food required by persons of different age and occupation.

The studies on the digestibility and nutritive value of different foods which have been completed cover—

Bread made from standard patent flour, whole-wheat flour, and other grades of wheat flour.

Cereal breakfast foods, crackers of different sorts, and macaroni.

Corn bread made in different ways from standard types of meal.

Dried beans and cowpeas.

Raw fruits and nuts in various combinations.

Beef of different cuts cooked in various ways.

American Cheddar cheese made and ripened under different conditions.

The cooking experiments have shown the losses sustained in different methods of cooking and their relative economy with reference to fresh vegetables, meat (principally beef), and bread.

The experiments with the respiration calorimeter have furnished specific data regarding the energy output, and hence the food requirements of persons engaged in different occupations and performing various amounts of work, as well as information regarding normal diurnal variations in body temperature, in the amount of energy and chemical compounds given off from the body during sleeping and waking, and other physiological matters.

As a result of the nutrition investigations 50 technical bulletins and 30 Farmers' Bulletins and other popular publications have been issued. Some of

(Witnesses: True, Zappone.)

these bulletins are used as text-books and reference works in schools and colleges, and it may be said with truth that the published results of the nutrition investigations have materially modified many statements which are now made in standard physiologies and text-books of various sorts regarding the nutritive value of different kinds of food.

Among the most important problems which are already under investigation or are contemplated for further study may be mentioned the following:

The comparative digestibility and nutritive value of pork, mutton, lamb, and veal.

Poultry and fish.

Eggs of different kinds of domestic poultry.

Milk, skim milk, buttermilk, and whey.

Cheese of other varieties than American cheddar.

Butter, lard, olive oil, and other culinary fats.

Cakes, pastry, and similar flour products.

Rice, rye, barley, Kaffir corn, and buckwheat.

Vegetables (fresh and preserved, raw and cooked).

Cooked fruit and fruit products.

Nut products.

Hitherto digestion experiments have almost invariably been made with young and healthy men. Data are also needed regarding the digestibility of different foods by women, young children, and old persons.

It is also proposed to study the effects upon nutritive value of different methods of cooking and combining foods and the effects of different methods of handling meat and meat products from animals bred, reared, fed, and fattened under known conditions.

Studies are also needed regarding the food and energy requirements of men and women engaged in different occupations, particularly the common occupations of farm, workshop, and home.

The CHAIRMAN. I suppose it is true, is it not, that when these extensive and elaborate investigations have been made and you have reached your conclusions, so far as the article thus treated goes, the necessity for any further examination and investigation is at an end?

Doctor TRUE. Yes; if we determine that we have worked the problem out we stop.

The CHAIRMAN. If you reach what you are looking for, as a reliable result, that ends that subject? .

Doctor TRUE. Yes.

The CHAIRMAN. And you do not have to bother with that again, except as you happen to strike it in combination with something else?

Doctor TRUE. No, sir.

The CHAIRMAN. Has the Bureau now on hand work that engages all of its force?

Doctor TRUE. Yes.

The CHAIRMAN. This is a bureau, is it?

Doctor TRUE. No, sir; it is an office, the Office of Experiment Stations.

The CHAIRMAN. An office or a division; what is "office" synonymous with? I think this is the first time we have struck an office.

Doctor TRUE. Practically, I judge, it is synonymous with "bureau;" but it is called an office.

Mr. ZAPPONE. Throughout the Government service you will find those three designations—bureaus, divisions, and offices.

The CHAIRMAN. What is the significance of "office" in this connection as distinguished from "division" and "bureau," if there is any?

Doctor TRUE. Well, we have a large and complicated work. I do not know that any official definition has been given.

(Witnesses: True, Zappone.)

The CHAIRMAN. Is it your idea that that is why it is called an office—on account of the large and difficult work?

Doctor TRUE. I can only say this: That the name was given to it when it was a comparatively small organization, but it dealt with a very large enterprise. This office was established after the Hatch Act was passed, and, as I understand the matter—of course this is only on information—the name “office” was given to it as an indication that it was to have a certain dignified position in the work of the Department, because of its relation to a great enterprise.

The CHAIRMAN. Then I judge from what you say that the name “office” is simply an arbitrary designation. I can not quite see why there is any special distinction between it and a division or a bureau, either in the scope of its duties or its powers or the manner in which its duties are discharged. If there is any, I would like to find out what it is.

Doctor TRUE. Evidently those terms are not used in any exact way under our Government. In some of the Departments the word “office” seems to be preferred and in others the word “bureau” is preferred.

Mr. ZAPPONE. In the Treasury Department we have the Supervising Architect's Office, which is a large office, larger than many bureaus in other Departments in the Government service.

The CHAIRMAN. They began by calling it an office, and have continued so to do?

Mr. ZAPPONE. That is about the way it was brought about, Mr. Chairman. There is no definite line of distinction between them.

Mr. SAMUEL. Then under the Agricultural Department you have the Forest Service.

Mr. ZAPPONE. Yes; we also have a service. But that title of “service” is confined more exclusively to scientific bureaus.

The CHAIRMAN. I notice here on page 282, “M. H. Downey, agent, at \$1,000.” Where is he located and what does he do?

Doctor TRUE. He is engaged in the irrigation investigations. I can not tell where except by reference to the records.

The CHAIRMAN. I see he has a very large sum for traveling expenses—that is, relatively large. That indicates that he is traveling all the while, I suppose?

Doctor TRUE. Not necessarily, because travel includes subsistence and may include the subsistence of the party which he has with him.

The CHAIRMAN. Where does the item appear for your man at the Maine State University?

Doctor TRUE. It appears under the nutrition investigations, preceding the drainage.

Mr. ZAPPONE. It is on page 279.

The CHAIRMAN. Which one is he?

Doctor TRUE. C. D. Woods.

The CHAIRMAN. You have Mr. Allen, assistant director and editor of the Experiment Station Record, at \$3,000. Then you have Mr. Beal, Chief of the Editorial Division, at \$2,500, and Mr. Langworthy, nutrition expert and editor, at \$2,250. Are those people all engaged in substantially the same kind of work?

Doctor TRUE. No, sir.

(Witnesses: True, Zappone.)

The CHAIRMAN. I find Mr. Allen and Mr. Beal on page 276, and also Mr. Langworthy.

Doctor TRUE. Yes.

The CHAIRMAN. Then, we have over here again "W. H. Beal." He gets in here twice in some way. He is here as the Chief of the Editorial Division, at \$2,500, "salary, \$2,083.34," and then we have here "W. H. Beal, editor, chief, \$416.66."

Doctor TRUE. Yes.

The CHAIRMAN. That is the balance of the time unaccounted for in the first item?

Doctor TRUE. Yes.

The CHAIRMAN. Are those editorial men engaged in doing the same kind of work, or the same work?

Doctor TRUE. No, sir. Doctor Allen is assistant director, and as such he acts in my absence as director and takes part in the inspection of the stations and in the general business of the office. He also has charge, as the managing editor, of the Experiment Station Record, collecting the material month by month for that and seeing that it is in proper shape, writing the introductory articles, or editorials, in which we make general comments on the work of the stations and suggestions for experimental work, and so forth. Mr. Beal has general charge of all the other publications which the office prepares. Whenever a manuscript is prepared in the office, outside of the Experiment Station Record, it is submitted to Mr. Beal, and he passes on it to see whether it is in proper form and to reach a decision as to whether it is a proper publication for us to issue, and he reports that to me for final action. He also deals directly with our Division of Publications about a great many details connected with our publishing work. He also takes part in the inspection service and himself prepares a large amount of material, both for the Experiment Station Record and for our popular publications, so that his duties are quite various.

Under the legislation as it was that fiscal year, 1906, we were permitted to pay a part of his salary from the irrigation fund, because he did a considerable amount of work relating to publications prepared by them; but at the end of that fiscal year this arrangement ceased, a change of legislation necessitating the payment of his salary out of one fund all the time.

Mr. ZAPPONE. In other words, during 1906 he received two payments from the Secretary, one under the fund known as "Agricultural experiment stations" and the other under the appropriation for irrigation and drainage.

Doctor TRUE. Yes; he was regularly transferred. That is, he was not paid out of two funds at the same time.

The CHAIRMAN. What does Mr. Langworthy do? He is an expert and editor also?

Doctor TRUE. Yes. He is one of the men engaged on the Experiment Station Record, preparing material in the line of human and animal nutrition and animal production in general. At the same time he acts as our general representative at Washington of the nutrition investigation. He is the expert on whom we rely to determine, in connection with the experts employed at the different outside stations, what the plan of work shall be and what authorizations shall be.

(Witnesses: True, Zappone.)

issued. He follows that up to see that the work is done, receives and examines the reports, and in many cases himself works up material which can be incorporated with those reports. In some cases he conducts investigations on his own account, where that is feasible. For example, he went over to Baltimore and made an investigation of the dietary at a home for elderly people there. We lacked information regarding the dietary habits and needs of people beyond middle age. Such studies have an economic bearing on the dietaries given people in such institutions.

In general, I might make this statement about my scientific force, that we try to have a limited number of the best experts that we can afford to employ, and to devote those men to such things as they are best able to do. Being an office that has to deal in a general way with the agricultural experiment stations, we can employ the services of those experts for a portion of the time to deal with matters that relate to the stations, and they can also work on special investigations for which they are fitted. That is an important matter in my office, because a great deal of our work is of a very routine character, involving the preparation of publications on the basis of other publications, and it is difficult to get men of the right type to do that work unless we offer them inducements in the way of opportunities to conduct some original research themselves, or to engage in our inspection service which brings them into direct contact with the workers of the stations. We keep our men busy, but try to give them a reasonable variety of work to keep them contented, and we have been quite successful in maintaining a small force of good men who have been with us for a long time, so that they are thoroughly familiar with the history of the experiment station enterprise in this country. That, of course, makes their advice and assistance increasingly valuable to us.

The CHAIRMAN. I will ask you right here, can you state the number of projects in the investigation of which your office now is engaged—drainage investigations and foods? On just what are you now at work? We will begin on page 285.

Doctor TRUE. The projects are laid out fully in this report; I have not made a mathematical enumeration of them.

The CHAIRMAN. Do all the projects appear on pages 286 and 287 of the list of expenditures?

Doctor TRUE. Beginning on page 285 and running to the bottom of page 287.

The CHAIRMAN. That includes them all, does it?

Doctor TRUE. Yes.

The CHAIRMAN. So that you need not state them, because we can use that, if we desire to use it.

Doctor TRUE. Yes.

Mr. ZAPPONE. That gives them in detail and the expenditures in each case.

The CHAIRMAN. Is there any duplication of expenditures in your office?

Doctor TRUE. No; I do not know that there is.

The CHAIRMAN. Are there any men on the rolls in your office who are on any other Government roll or who are in any other Government service?

Doctor TRUE. No.

(Witness: True.)

The CHAIRMAN. Have there ever been?

Doctor TRUE. No; that is forbidden by law, and we have to be very careful.

The CHAIRMAN. Yes; I know it is forbidden, but it is a fact that once in a while it happens.

Doctor TRUE. I do not see how it could happen, because we are so careful about it.

The CHAIRMAN. The fact is that your office, at any rate, has complied with the law in that respect?

Doctor TRUE. Yes.

The CHAIRMAN. Do you have any men employed in your office engaged also in any private employment, or who are doing any work outside of the office?

Doctor TRUE. No; I do not know that there is anybody.

The CHAIRMAN. You do not have any men who do any lecturing in the schools and colleges on these topics in which they have specialized?

Doctor TRUE. There may be a few cases where a few lectures are given, or an occasional article prepared for a magazine or a book. But I do not now recall any case of regular employment.

The CHAIRMAN. I notice in your office, as in the others, there are different classes of clerks, beginning at \$840 and running up to \$1,600, with steps between the two of anywhere from \$60 to \$200. Upon what basis are those grades maintained?

Doctor TRUE. Those are maintained on the basis of the quality of the work and the efficiency as regards amount and other factors that would enter into efficiency.

The CHAIRMAN. Is there any difference in the quality of work, in the various kinds of work that these clerks do? That is, are they all doing the same thing, except that there is a difference in connection with the quality of the work done by the different clerks?

Doctor TRUE. No; they are doing different things.

The CHAIRMAN. That is, does a \$1,000 clerk do things that an \$840 clerk does not do, and does your \$1,200 clerk do things that a \$1,100 clerk does not do?

Doctor TRUE. Yes.

The CHAIRMAN. Can you state briefly what the distinctions are between those classes in the character of the things done by each?

Doctor TRUE. Our force is so arranged that we do not work the people in gangs, so to speak, but each person is assigned to certain definite duties and is expected to become proficient in those, so that I should have to go into considerable detail to explain. Now, take two or three instances. On page 75 you will find a clerk at \$1,400. She is one of our best clerks, who has been with us for a long time and has in her charge the details of the making up of the index to the Experiment Stations Record. She also aids particularly the man who is preparing material for the Record in botanical lines. She is a stenographer as well as a clerk, and so can aid in that kind of work.

The next person on the list who gets \$1,400 has charge of our letter files and the mailing of our correspondence. She also has charge of supplies for the office.

The CHAIRMAN. She does what with the correspondence?

(Witness: True.)

Doctor TRUE. She mails, files, and indexes our correspondence. She has been with us since the organization of the office, and has a fund of information regarding our correspondence and routine business which is very valuable to us.

The CHAIRMAN. Has she been doing that work all the while?

Doctor TRUE. Yes.

The CHAIRMAN. How many years; that is, thirteen or fourteen years?

Doctor TRUE. Yes, more than that. We have been established as an office for eighteen or nineteen years.

The CHAIRMAN. She has been doing that work all that time?

Doctor TRUE. Yes.

The CHAIRMAN. So that she is now doing substantially what she did at the beginning?

Doctor TRUE. She is now doing work in a narrower range than in the beginning or during the progress of the work, because there was a time when she also kept the accounts of the Office. But our correspondence has grown to such an extent that it is impossible for her to do more than she does now. She is the most faithful and painstaking person imaginable, often working overtime, and she has all that she can possibly attend to. But she could not perform the service which the clerk previously referred to does, because she is not a stenographer.

The CHAIRMAN. She receives a larger compensation than the other one, does she not?

Doctor TRUE. No, sir; just the same.

The CHAIRMAN. Now, you say that she can not do the same work?

Doctor TRUE. No, sir; she is not a stenographer.

The CHAIRMAN. She can not render so valuable service?

Doctor TRUE. I think the service is just as valuable, but it is of a different kind.

The CHAIRMAN. A different kind of work?

Doctor TRUE. Yes.

The CHAIRMAN. Then the salaries in your Bureau are predicated upon the quality and the amount of the services rendered, are they?

Doctor TRUE. Yes.

The CHAIRMAN. Are there any other factors which enter into the amounts of the salaries fixed?

Doctor TRUE. Other things being equal, length of service. If we happened to have, which would rarely occur, two clerks whom we rated exactly alike as regards quality and amount of work we would probably, if the question of promotion arose, prefer the person who had been longest in the service if there was no other way of reaching a decision.

The CHAIRMAN. I was not inquiring about the question of promotion, but the amount of the salary fixed.

Doctor TRUE. I thought that was involved.

The CHAIRMAN. I was coming to the promotion problem in a minute.

Doctor TRUE. Yes.

The CHAIRMAN. Do I understand that the length of service is a factor in determining the amount of compensation to be received,

(Witness: True.)

without reference to the work done or the units of work accomplished?

Doctor TRUE. No, sir; it is only a factor in connection with those. I can illustrate that by the case of one clerk on this list, who is getting \$840. That clerk is a person who is very faithful, but she has decided limitations. She has been with us a long time, and the question of her promotion has been before us a number of times, but I have always held that in her case length of service was not a sufficient recommendation for promotion; that is, that taking into account the character and amount of work, she was being amply paid and should not be further promoted.

The CHAIRMAN. You may now state upon what basis you make promotions in your Bureau.

Doctor TRUE. We have the regular plan followed in the Department of efficiency records, which are made up twice a year and transmitted to the Secretary's office. When the question of promotion comes up in my office, we inquire into what the clerk under consideration is actually doing by getting reports from the person who is immediately over that clerk and from the chief clerk of my office, as the latter is supposed to have general knowledge of the regularity of attendance of the clerks and their personal qualifications. As far as possible I try to keep myself in personal touch with our regular force, so as to have some idea of what they are doing and what success they are having. Getting together all that information, we make the recommendation which seems best to make in each case.

The CHAIRMAN. Are these records open to the examination of individuals affected?

Doctor TRUE. The efficiency records, so far as my office is concerned, are not open, as I understand it. What the practice is outside of my office, when the records are transmitted to the office of the Secretary, I do not know.

The CHAIRMAN. Have you any standard in that examination which results in a reduction in position?

Doctor TRUE. Yes; we have just had a case of that kind. A clerk was appointed under civil-service rules for a probationary period, having passed a very excellent examination, but when she was tried in the work it was found that she did not fully measure up to our requirements. However, she did well enough to justify us in deciding to retain her in the service, but at a lower salary than the initial salary.

The CHAIRMAN. Have you ever dismissed any from the service on account of their failure to keep up with the standard?

Doctor TRUE. Yes; we have done that in a few cases; and there have been a number of transfers from my office to other branches of the Department, and of the Government service, because the individuals did not meet our requirements, although they might be good workers in some other lines. These transfers enabled them to find more suitable places elsewhere.

The CHAIRMAN. Do you have any difficulty in getting all of the clerks and assistants and experts that you want in your Bureau?

Doctor TRUE. Yes.

The CHAIRMAN. At the salaries fixed?

Doctor TRUE. Yes.

(Witnesses: True, Zappone.)

The CHAIRMAN. To what branches of your Bureau does that apply, or does it apply to them all?

Doctor TRUE. It applies particularly to our irrigation and drainage service.

The CHAIRMAN. What classes of employees do you have difficulty in getting?

Doctor TRUE. We have difficulty in getting the right kind of experts at the scale of salaries fixed in the Department. Our lines of work relating to those subjects are in a way comparatively new, and the number of men who possess the requisite training and experience is very limited.

Mr. ZAPPONE. Mr. Chairman, you have reference to appointments through the Civil Service Commission, have you not?

The CHAIRMAN. I am coming right along with that.

Mr. ZAPPONE. Yes.

Doctor TRUE. We have had the experience in a considerable number of cases that when we had found a man we thought was particularly good, his employers would raise his salary so that we could not employ him; or for other reasons he would not accept the salary which we offered him.

The CHAIRMAN. How many men have you had leave the service on account of insufficiency of salary?

Doctor TRUE. Quite a number.

The CHAIRMAN. What class of employees, particularly, have left the service on account of insufficient salaries?

Doctor TRUE. Chiefly the people in the expert class.

The CHAIRMAN. Is that after they have been with you a number of years?

Doctor TRUE. In some cases.

The CHAIRMAN. Is it not, as a rule, after they have been with you a number of years?

Doctor TRUE. No, sir; that is not true altogether, particularly in this irrigation service.

The CHAIRMAN. You take a man and work him into the irrigation service. He comes into contact with the local people where he is doing his work. They like him and offer him a larger salary, and he leaves the Government service and goes to work for them—that is the proposition?

Doctor TRUE. Yes, sir.

The CHAIRMAN. And is it not true that in the great majority of instances where they leave the Government service for private work it is after they have had considerable or quite a long term of service with you and have become expert in the Government work, so that on account of their Government service they have a special reputation which enables them to command a higher salary than they could have commanded had they not been in the Government service?

Doctor TRUE. Yes; often that is so.

The CHAIRMAN. That is, one of those men has a peculiar, special, and official reputation for which people outside are willing to pay?

Doctor TRUE. Yes, sir.

The CHAIRMAN. And the man in private employ who could do exactly the same kind of work, and had the same capacity and ability,

(Witness: True.)

would not be likely to get the same compensation as the same sort of man in your service?

Doctor TRUE. A man would not usually have had the same kind of experience in private service.

The CHAIRMAN. In other words, then, there is no private institution that gives these men this expert drill that you give them?

Doctor TRUE. Not in the same way.

The CHAIRMAN. Exactly; that is what I mean; not in the same way. So that these men acquire a special fitness?

Doctor TRUE. Yes.

The CHAIRMAN. And then they have the advantage of that special fitness to get higher compensation elsewhere?

Doctor TRUE. Yes. I have no objection to that as a general proposition; but I say this—it does not seem to be a wise or economical plan for the Government of the United States to remain in such a position with reference to salaries paid to its experts that it can not retain them in its service.

The CHAIRMAN. That is, it does not pay to educate these men for other people?

Doctor TRUE. No, sir. And we are often put at a disadvantage in that respect. Here is the proposition as it comes to us with regard to this irrigation service. We may employ a man who has had a good training in college and then proper experience afterwards. He will be an excellent man then to carry on business connected with a canal company, we will say. We take him into our service and determine whether he is a man of originality, so that he can not only carry on a business enterprise, but can institute and carry on experimental inquiries, and we may be paying him for that a salary, say, of \$2,000 or \$2,500. Because of the experience which he gains with us and the information which he gathers in many ways, he makes himself all the more valuable to a canal company as manager, and very soon the proposition comes to employ him at \$3,500 or \$4,000. We are forbidden by law to give him more than \$3,000, and therefore we lose him. I say that that does not seem to be a wise arrangement, provided, of course, the man is as I have described him, because his services ought to be worth as much to us under those conditions as to private parties.

The CHAIRMAN. Do you think it wise for the Government to put itself in competition under those circumstances with outside enterprises?

Doctor TRUE. No, sir; but I think under present conditions the expert service of the Government ought to be paid more, and that our present grade of salaries is too low. Moreover, there are inequalities in that service now which are creating disagreeable effects.

The CHAIRMAN. Are there any who are receiving too much or are they all receiving too little?

Doctor TRUE. In some cases, no doubt, men are receiving more than they ought to receive, but we are trying to weed those out as well as we can. It is a puzzling proposition with the limited field which we have.

The CHAIRMAN. Do you have any difficulty in keeping your force up—for instance, is your force full now?

(Witness: True.)

Doctor TRUE. No, sir; it is not full now, because it is not quite time to begin to fill our force up for the season's work.

The CHAIRMAN. Have you enough force now, taking into account the time?

Doctor TRUE. Yes; we have enough now.

The CHAIRMAN. So that at present you are not suffering from stringency in that respect?

Doctor TRUE. No.

The CHAIRMAN. Do you get this class of men we are speaking of from the civil service?

Doctor TRUE. Partly from the civil service and partly in the expected class, under special provision, under which we are allowed to employ men for investigations.

The CHAIRMAN. That is, special and peculiar men that are not easily obtainable by special examination?

Doctor TRUE. Yes.

The CHAIRMAN. Now, when it comes to the question of salaries and compensation, is not the fact that a man in the Government employ has regular and continuous and permanent employment to be considered in connection with the other fact that private employment is necessarily more or less temporary in its character, and may be for one, two, three, four, or five years, as the case may be, or perhaps even less—is not that a factor that should be taken into account in determining whether the Government salary is large enough?

Doctor TRUE. Yes; I think so.

The CHAIRMAN. And it is a fairly important factor, is it not?

Doctor TRUE. Yes; I think that is so.

The CHAIRMAN. Do you give that weight in making the estimates, in making the suggestions which you have made in connection with the amount of salaries?

Doctor TRUE. Yes.

The CHAIRMAN. Do you have any trouble in getting all the employees you need in your positions from \$1,400 down?

Doctor TRUE. No, sir; I do not know that we do.

The CHAIRMAN. Do you have any trouble from their leaving you, in the positions from \$1,400 down, on account of getting greater compensation elsewhere?

Doctor TRUE. Yes, sir.

The CHAIRMAN. You are able to fill their places as fast as they do leave?

Doctor TRUE. Yes; but with some interruption to the work in some cases.

The CHAIRMAN. Of course that would be true. That is, an exit and entrance might not be contemporaneous.

Do you make any difference in the salaries of your employees inside Washington and outside of Washington or are they all on the same plane substantially and paid the same?

Doctor TRUE. Well, we deal with the matter so much on an individual basis that I do not know that I can make an answer to that that would be fair.

The CHAIRMAN. What is your judgment on that? Are you paying more to clerks or to assistants or to experts in Washington than you

(Witness: True.)

are paying outside, or is there a general level of the salaries, and are they both receiving the same?

Doctor TRUE. I think about the same. I do not believe there is very much difference in that.

The CHAIRMAN. Then you are not conscious of any differentiation between employees outside of Washington and employees in Washington in regard to the salaries they are receiving?

Doctor TRUE. No; speaking generally.

The CHAIRMAN. Yes, of course; I understand. What sort of investigations are you conducting in Alaska and Hawaii and Porto Rico which are different from those which you conduct here in Washington or at the other experiment stations?

Doctor TRUE. Those stations are organized in a similar way to the other experiment stations, but they have work suited to the particular regions in which they are placed.

The CHAIRMAN. With the exception of your irrigation and drainage projects, what is the reason you could not conduct all your investigations, say, in Washington? Take your food investigations, your meats and cereals and fruits and nuts, and so forth; why could not all that work be done right here in a central place, so as to eliminate the necessity of these various stations?

Doctor TRUE. It might be; but that would involve more expense to do the same amount of work, because under the present arrangement our investigations are of a cooperative character and the Government is paying only part of the expense.

The CHAIRMAN. That is, the Government would have to bear the whole expense here, whereas now it only pays a part of the expense?

Doctor TRUE. Yes.

The CHAIRMAN. How are requisitions made in your Department? Just describe the different steps. Suppose a clerk in some office wants some supplies, what does he do and how is it done?

Doctor TRUE. He conveys that information to our chief clerk.

The CHAIRMAN. Then the chief clerk does what?

Doctor TRUE. He is charged with making up the requisitions and he inquires into it, and if it is a proper thing to do, he makes up the requisition.

The CHAIRMAN. That is, this chief clerk makes up the requisition?

Doctor TRUE. Yes.

The CHAIRMAN. So that the practical work of getting the supplies that he needs is done only once—that is, the chief clerk does it—and it does not go from him into the hands of some other official; does it, or not?

Doctor TRUE. No.

The CHAIRMAN. We have found one or two instances where the first man prepared the request, and that passed along, and a little later somebody else prepared a requisition, and then I think it went into the hands of some other man, and by the time you get through with it the work had been divided up among three or four people which one person could have accomplished. Is there any such routine of procedure in your Bureau?

Doctor TRUE. No; the chief clerk does that for us.

The CHAIRMAN. He does the whole business?

Doctor TRUE. Yes.

(Witnesses: True, Zappone.)

The CHAIRMAN. Do you pass in the first instance upon the question of salaries and expenditures yourself, subject to the revision of the Secretary of Agriculture?

Doctor TRUE. Yes.

The CHAIRMAN. What are tests of farm machinery? What is that? What is a test of farm machinery?

Doctor TRUE. That was work which we took up under the terms of the appropriation act for that year.

The CHAIRMAN. Does Congress require you to test farm machinery; and if so, of what character and for what purpose?

Doctor TRUE. We made, in connection with that, for one thing a study of the different forms of corn harvesters. We also undertook some investigations with reference to the use of denatured alcohol as compared with gasoline for motive power.

The CHAIRMAN. I thought that the Chemical Bureau went into the denatured alcohol proposition?

Doctor TRUE. Yes; but they are studying it from the chemical side.

The CHAIRMAN. What was your point of view?

Doctor TRUE. We were making the actual tests, studying the question, to determine whether alcohol would work in certain classes of machines, and whether it was economical to use it.

The CHAIRMAN. Is that what you call "testing farm machinery?"

Doctor TRUE. Yes; that is the general title given there.

The CHAIRMAN. Testing whether alcohol could be used as a motive power?

Doctor TRUE. Yes; as a source of power.

Mr. ZAPPONE. The law reads, Mr. Chairman:

* * * and upon the use of different kinds of power; and appliances for irrigation, drainage, and other agricultural purposes. * * *

The CHAIRMAN. Do you think of anything further, Doctor, that you would like to state?

Dr. TRUE. I think we have covered the subject pretty well. I would be glad, of course, to give any further information that would be of use to the committee.

The CHAIRMAN. I do not think of anything more. (Turning to Mr. Zappone.)

Mr. ZAPPONE. There is nothing more, unless you would like to have Doctor True speak further on the utility of his office.

Doctor TRUE. We have gone over that pretty thoroughly.

The CHAIRMAN. If you would like to make any additional statement as to the utility of the investigations carried on by your office, as to their material value to the people of the country, you can state, if you like, whatever may occur to you.

Doctor TRUE. I think that we have covered the general subject pretty well.

The CHAIRMAN. Then we will excuse you, Doctor, and we are greatly obliged to you.

OFFICE OF PUBLIC ROADS.

JANUARY 25, 1907.

(Part of testimony, on above date, before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF LOGAN W. PAGE, ESQ., DIRECTOR OF OFFICE OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You are the head of the Division of Public Roads?

Mr. PAGE. Yes, sir; the Office of Public Roads.

The CHAIRMAN. How long has that office been in existence?

Mr. PAGE. About fifteen years, I think.

The CHAIRMAN. How long have you been the head of it?

Mr. PAGE. Two years, or very nearly two years.

The CHAIRMAN. Who preceded you?

Mr. PAGE. Mr. Martin Dodge, of Ohio.

The CHAIRMAN. Did you go up through the Bureau by promotion and land at the head of it?

Mr. PAGE. Yes, sir; I took the civil service examination first.

The CHAIRMAN. How long had you been in the service when you were appointed at the head of the office?

Mr. PAGE. About five years.

The CHAIRMAN. You have relatively a small force?

Mr. PAGE. Yes, sir.

The CHAIRMAN. Are the men that you employ necessarily scientists?

Mr. PAGE. Yes. Of course, they are chiefly engineers in my work; it is engineering work.

The CHAIRMAN. Then is your work of such a character that you have no difficulty in getting men to keep up the personnel of your office?

Mr. PAGE. I have a great deal of difficulty.

The CHAIRMAN. Why is that?

Mr. PAGE. Because it is a line of engineering that can not be taught at colleges, and I have been driven to the point of giving a graduate course in highway engineering to get men to fill our positions.

The CHAIRMAN. Is not the building of roads a familiar branch of engineering science?

Mr. PAGE. No; it is comparatively new—that is, modern road building.

(Witness: Page.)

The CHAIRMAN. Yes. What do you mean by that—"it is comparatively new?"

Mr. PAGE. You see, it is an art, in a way. The principles of engineering that would be required in railroad engineering would be exactly the same, as far as grading and cutting and filling and all that are concerned; but where you come to the actual construction of the road and a study of your grades from the standpoint of a highway, there it branches from railroading and really becomes an art. A man has to be trained in it.

The CHAIRMAN. Is not the basis of the work of your Bureau the telford and macadam roads?

Mr. PAGE. We do not advocate any particular type. We recommend those to people who can afford them.

The CHAIRMAN. Are not the telford and the macadam roads the well-recognized standards for highways?

Mr. PAGE. They are the standards among the broken-stone roads; yes. They are the general standards for the best rural highways.

The CHAIRMAN. And do you deal with the broken-stone road and also the ordinary dirt road?

Mr. PAGE. Yes, sir.

The CHAIRMAN. You say you have difficulty; that you can not get men certified to you by the Civil Service Commission on account of the peculiar drill that your men have to have?

Mr. PAGE. Yes; we have had a very great deal of trouble.

The CHAIRMAN. How many men of that kind do you have?

Mr. PAGE. I have been trying to get ten students for the past three years, but the first year the Civil Service Commission could only supply me with one after holding three examinations. We give a one year's graduate course, and retain the men if their ability warrants it. We give such a hard examination for the position that the Commission is willing to let them undergo any subsequent promotion. The use of six engineer students in building roads, it is estimated, results in a per annum saving of \$16,000. Another trouble is in keeping engineers after we get them.

The CHAIRMAN. How many men of this class that you find it difficult to get do you employ in the office, or is your office composed altogether of that class?

Mr. PAGE. Except the clerical force, the chief work is engineering, and the greatest number of men are engineers.

The CHAIRMAN. It is a question, then, of fitness rather than of salary that embarrasses you in getting the men you want?

Mr. PAGE. No; I think it is rather an abnormal condition of affairs that exists at present. After a few years the supply, I think, will fully equal the demand. You see, there has been a great deal of agitation throughout the whole country for the betterment of roads, and a number of the States, particularly in the East, have established highway commissions, that are building roads on a large scale; they have employed most of the men that have had any experience, and they can pay better salaries than the Government pays.

Mr. SAMUEL. Do you cooperate with the States?

Mr. PAGE. Yes.

The CHAIRMAN. You mean the States can pay better salaries than the Government?

Mr. PAGE. The States do; yes, sir. I had an engineer last year; as I could only give him \$2,200, the State of Illinois immediately gave him \$3,500, and he left.

The CHAIRMAN. An increase of \$1,300?

Mr. PAGE. Yes.

The CHAIRMAN. You practically educate these men?

Mr. PAGE. Yes.

The CHAIRMAN. There is no other place where they can be educated?

Mr. PAGE. No. I think that is one of our chief functions—I have always considered it so—to supply men to fill positions of that sort as a part of the work. We try to do it, but we can not get enough.

The CHAIRMAN. You can not get enough to supply the demand?

Mr. PAGE. Not at present.

The CHAIRMAN. In addition to turning out these qualified students or experts for use by private parties or by the various States in the matter of building roads, what kind of work does your bureau do?

Mr. PAGE. The work falls naturally into three principal groups. First, I should say, disseminating information by what we call the object-lesson road method; second, by disseminating, through printed publications, information on different methods of road construction and maintenance, etc.; and third, by the testing of road materials, to let any community know, among the available materials, those which are best suited for road making. Of course, those three groups are subdivided.

The CHAIRMAN. Do you make any practical experiments in road building in your own bureau? Do you build pieces of road?

Mr. PAGE. Yes, sir.

The CHAIRMAN. Where do you build them?

Mr. PAGE. All over the country. The building of object-lesson roads results in a per annum saving of \$436,175.

The CHAIRMAN. Under what circumstances do you build them all over the country? That is, how do you happen to locate them in some particular place?

Mr. PAGE. Because we are requested to do so.

The CHAIRMAN. Oh, I see—by the local authorities, State authorities, or municipal authorities?

Mr. PAGE. Sometimes by all three. Our work is largely confined to the rural districts, where the people are seeking information. I do not like to go inside of any municipality, because I think it should have money enough to work out its own problems.

The CHAIRMAN. Does the Government go to the expense of building this piece of road, or does it simply go there and supervise it and have the local people pay the bills?

Mr. PAGE. We could build not more than 7 miles of road a year with our whole appropriation.

The CHAIRMAN. What is your usual experiment—7 miles of road?

Mr. PAGE. Oh, no; I say my whole appropriation would build but 7 miles of road.

The CHAIRMAN. What kind of a road do you refer to when you say that—telford or macadam?

(Witness: Page.)

Mr. PAGE. Either; we could not build more than about 3 of telford.

The CHAIRMAN. What does a telford road cost per mile?

Mr. PAGE. It depends on what the width of the road is, and how thick you lay the stone. A 16-foot telford road would probably, under normal conditions, cost about \$11,000 a mile—eleven, twelve, or fifteen thousand dollars a mile.

The CHAIRMAN. And the macadam road four or five?

Mr. PAGE. Yes; but that does not hold in all localities. Building a road is a good deal like building a house; it depends on how big a house you want to build, or how big a road, and what kind of material you are going to use in it. If you are compelled to haul the material, an additional expense of 25 cents a ton is entailed for each mile of hauling.

The CHAIRMAN. Then the work of your Bureau is largely educative?

Mr. PAGE. Almost entirely.

The CHAIRMAN. Almost wholly?

Mr. PAGE. Yes.

The CHAIRMAN. What roads are you developing along your educational lines besides the macadam and the telford?

Mr. PAGE. My policy has been, when a community asks for assistance, to ascertain what the local conditions are, and how much money they are spending annually on their roads; then to study their conditions and make suggestions to them, to see whether, without expending any more money than they are actually expending, they can not get better results.

The CHAIRMAN. That means a dirt road?

Mr. PAGE. Yes; in the very rural districts. Of course the questions in the case of a macadam road are whether they have the money to build it, what materials they have, which available material is the best for their use, what it will cost to get the materials to the road, and how much grading is necessary. Of course if you are going to build an expensive road you should make the grades all right.

The CHAIRMAN. Can you get a good dirt road that will wear fairly well and give satisfactory results?

Mr. PAGE. It depends largely on the nature of the soil. In the New England States they can very well, indeed. In many of the Western States it can be done in the glaciated sections of the country; but when you get below the glacial belt and get the residual clays, unless you get unusual conditions, like river deposits of gravel, you can not make very good roads.

Mr. SAMUEL. Do you write Farmers' Bulletins on road questions?

Mr. PAGE. Yes, sir; we wrote two last year.

Mr. SAMUEL. Is there much demand for them?

Mr. PAGE. A great deal. I think about 200,000 or 250,000 copies of one of our bulletins were printed.

The CHAIRMAN. How do you get at the method of building a good dirt road in a certain locality? Is it an engineering proposition, or is it an experimental proposition?

Mr. PAGE. It is a special sort of engineering. If a person is familiar with those problems, he can tell pretty well. In the dirt road from 75 to 90 per cent of the problem is a matter of drainage. People can not understand why it is necessary to prevent the water from ac-

(Witness: Page.)

cumulating by keeping side ditches open all the time, and if there is no outlet for water in a certain place, to make one. All roads, no matter what the subsoil is, are very much improved by good drainage.

The CHAIRMAN. That, of course, is a very expensive matter in many instances, on account of the topography of the land?

Mr. PAGE. It is very expensive sometimes; but you can not get any kind of a road good unless you properly drain it.

The CHAIRMAN. When you have secured the proper drainage you convex your road?

Mr. PAGE. Yes, sir.

The CHAIRMAN. And put the best material that is available in the center?

Mr. PAGE. Yes.

The CHAIRMAN. Is it your experience that the use of a road machine is a feasible method of working economically upon a dirt road?

Mr. PAGE. Yes. It is a labor-saving device. You can crown the road much more quickly with a road machine. I have found the split-log drag very good, and in our cooperative work with the Post-Office Department on the rural routes we generally advise the use of it. We get them to open the ditches, and as soon as it begins to rain the farmer can not do much work in the fields, and if he will put on his rubber boots and oilskin coat and get a log drag and drive over his roads with it he can go over 10 miles a day, and he will crown them up in good shape and get a very much better road.

The CHAIRMAN. You speak of a log drag. How do you make that drag?

Mr. PAGE. Split a log in two in the middle—it is best to face the forward sides of it with a strip of iron; an old wagon tire will do—and mount the sections at an angle, with two cross rungs through them, and fasten a chain through a hole in the front log and attached to the back log at an angle, that way [illustrates]; then here is the singletree in front, and the horses drag it along that way, sidewise, at an angle, throwing the earth from the sides to the center. The operator stands on it. The encouragement of the use of the split-log drag in the maintenance of earth roads has resulted in a per annum saving of \$20,000.

The CHAIRMAN. The drag is at an angle of about what—33° to the line of the road?

Mr. PAGE. About that; yes, sir. We have some rather hard problems in the way of rural highways. As an incident: We were requested several years ago to go down to Clarksdale, Miss., to build a road there. After inquiring into the conditions we found that there was no hard material to be found within considerably over 100 miles. There was no sand. We can make very good roads out of mixtures of sand and clay, but there was no sand there; there was nothing but buckshot and gumbo clay; and, worst of all, there was only \$200 with which to build the road. We spent all the money for wood, which is cheap there, and started quite an epoch in road making by burning the clay in place. We did not have to haul it at all. We plowed longitudinally along the road and then across, making a 4-foot furrow in the road, and put the sticks of cord wood across, with a layer of clay on top of them, then another layer of cord wood

(Witness: Page.)

and another layer of clay, throwing the clay up from the sides and making the gutters by so doing. Then we fired it up as soon as we got wind from one end of the road and burned it, and were laughed at by the farmers, who thought it was the silliest thing they had ever seen. But that community, which could then only raise \$200 for that experiment, was so well pleased that I have a letter from an engineer on the levee work near there who says that that county has now raised \$25,000, most of which is going to be spent in these burnt-clay roads. It is the first time that they have had a road which they could drive over at all seasons of the year. The burnt-clay road has resulted in an annual saving of about \$19,000.

The CHAIRMAN. What was the rationale of that road? What did it do? Burn the clay into a semibrick state?

Mr. PAGE. We thought that at first we would burn the clay to a clinker, as the railroads do, chiefly in the Middle West, for ballast; but I found that it would not be necessary to burn it at such a high temperature. If a clay is heated to a dull red heat it becomes non-plastic, and you can not make it plastic again. It acts just like sand. And another very peculiar thing we found in connection with that, was that it increases about 20 per cent in volume at the same time, and the process is then just like mixing sand and clay for sand-clay roads. You get just enough of the plastic clay on top to act as a cement, to hold the nonplastic or the burnt clay together, and get a perfectly smooth, hard road, which will stand a load.

The CHAIRMAN. Are you experimenting all the time with various soils in various localities?

Mr. PAGE. Yes, sir; and the testing of road materials effects a per annum saving of at least \$232,000. We make regular routine tests for any citizen of the United States who is going to use the material in the building of a road. One of the most difficult problems which road builders have to meet now is due to the greatly increased automobile traffic on the roads. It is affecting most the States that have spent the most money on their roads, because they have the greatest number of automobiles on them. With an ideally constructed stone road you have just enough wear, or, in other words, the qualities of the rock should be so adjusted to the traffic to which it is subjected that just enough fine dust is worn off to cement the larger fragments of stone together. Now, the automobile does not wear off any fine dust. The wind and rain are taking away the original binder, and that derived from the iron-tired vehicles that go over it; that is washed off and blown off, and the automobile loosens the surface of the road. These heavy machines going at high speed create a vacuum behind them which sucks up the dust and throws it into the air, and loosens the roadbed, and it soon "ravels," as the road builder calls it—gets loose and goes to pieces—and it is the most expensive roads that are affected most in that way. We must get some means for meeting this problem, and we are making experiments with every known material that we think will accomplish the desired end.

The CHAIRMAN. What is your theory about being able to get around it—getting some mineral material that will make a cement or mat that can not be broken in that way?

Mr. PAGE. By the automobile tire.

The CHAIRMAN. That is your point?

Mr. PAGE. Yes, sir.

The CHAIRMAN. What do you consider the most economical road, taking into account the cost of building and the expense of repair and the durability, the telford, the macadam, or the good dirt road?

Mr. PAGE. Oh, I think unquestionably, at the present time, if the community can afford it, the macadam road is by far the best and the most economical in the long run, provided it is not subjected to too many automobiles. We have got to treat the surface with some material that will keep the dust down if there are many automobiles going over it.

The CHAIRMAN. Oil will not do that?

Mr. PAGE. Some of the oils will. The oils which have asphaltum bases as high as 30 per cent or over do very well if they are properly used; and we are groping away to try to improve the method of using it. We are using crude tar; we are using calcium chloride, which is hygroscopic and absorbs water from the air and keeps the road damp, and we are experimenting now in our laboratory with some of the metallic resinates. We are trying everything we can think of which is reasonably cheap and will be practicable.

The CHAIRMAN. Up to date you have not gotten a result?

Mr. PAGE. We have gotten some results; we have made some experiments that have been going on for two years.

The CHAIRMAN. By that I mean satisfactory results—ultimate results?

Mr. PAGE. They are pretty expensive. They have to be repaired every year—that is, done over again each year. We have put a thin protective coating on and in one year it has generally worn off.

The CHAIRMAN. You have not been able to get anything that is more permanent than that?

Mr. PAGE. Nothing more permanent than that except at great expense; something like an asphalt.

The CHAIRMAN. I suppose the ordinary wheel with an iron tire tends to pack this material down and improve the road rather than disintegrate it?

Mr. PAGE. Yes; and it wears off that amount of dust which is sufficient to bind the coarser rock together. The automobile does not do that at all.

The CHAIRMAN. Is there any demand for the literature that you prepare?

Mr. PAGE. Yes, sir; we get a great many letters requesting publications.

The CHAIRMAN. How many applications do you have for experimental work in the course of a year?

Mr. PAGE. Do you mean testing materials in the laboratory, or—

The CHAIRMAN. No; I mean going out in certain localities and building sample roads.

Mr. PAGE. Oh, we have an enormous number. We can not possibly do more than 5 per cent of what we are requested to do.

The CHAIRMAN. That indicates an extremely vigorous demand on the good-roads proposition?

Mr. PAGE. Yes. The interest that is being taken everywhere for the betterment of roads is very great indeed. You can get an idea

(Witness: Page.)

of the amount of money that is spent, and what an important problem it is, and how important the betterment of roads is, particularly to agriculture, from this: We have almost completed a census of the mileage of roads in every county in the United States, the number of miles of roads improved with stone and gravel, the method of raising the tax, by statute labor or money tax, and the rate of the tax levy. We find approximately about 2,300,000 miles of road, with an expenditure of about \$75,000,000 annually. This is entirely outside of municipalities, and includes only rural, common roads, of which about \$15,000,000, or 20 per cent, is expended on permanent improvements. By that I mean improvements which make the road better the next year than it was the year before; and this high percentage is due to the fact that States like the New England States and New York and New Jersey and Pennsylvania bring that average up, I should say, at least 100 per cent, because they are making very large expenditures on their public roads.

Now, the different bureaus of the Agricultural Department are teaching the farmers, as we have just heard, how to kill wolves, how to get better crops and more of the same crop to the acre, and all that; but we are doing scarcely anything to help improve the roads. We can not keep up with the demands that are made simply for information on the subject. And every pound of produce that is raised on the farm, that gets to market, has got to be hauled from the farm to the market or to the railroad or to the boat—every pound of it goes over the common road. And, if I may be permitted, I should like to read you a portion of a letter I recently received from a man in Colorado, who gives the tonnage of the beet crop alone in northern Colorado, which is a thinly settled State. He says:

We have nine sugar factories in northern Colorado, and there will be at least three new ones next year; and we raised this year over 900,000 tons of beets, near enough to the million-ton mark to call it a million. The average price for hauling, when the farmer does it himself, is 33½ cents per ton, if the roads are dry; but the rains and snow we had in the early fall this year more than doubled the expense, making a loss to the farmer of over \$300,000. Then we raised in the same territory over 5,000,000 bushels of wheat. The loss to the farmer on the bad roads charged up to this crop would be over \$100,000. And this is not all. The farmer was spending the time on the road when he should have been plowing and getting his fall grain in the ground. There is also a great deal of heavy soil in this part of the State, and for beets or for spring wheat it is much better to have the land plowed in the fall; and I say he was spending his time on the roads when he should have been preparing his ground for fall and spring crops. And this is not all. Many of the farmers had to let their grain stand in the field in sacks while they got the beets out and to market; and loss on the crop in this way, by grain spoiled, and the use of the money, as well as drop in prices, added not less than 10 per cent more that can be charged up to the bad roads. I have not mentioned the potato crop.

Then he speaks of the potato crop, after which he says:

As you remember, I said in my talk in Denver that the 1,000,000 tons would mean 2,000,000,000 pounds of beets, and with an average load of 5,000 pounds—

That is a very large load. That would mean that they would have to have about six horses to haul it.

With an average load of 5,000 pounds, would mean 400,000 loads, which, hauled 2 miles to the dump and 2 miles empty back to the field, would mean 1,600,000 miles traveling over the roads to handle the northern beet crop alone.

That is about thirty or forty times the distance to the moon that is required for the roads of northern Colorado alone, and you can see what it is for the whole country.

The CHAIRMAN. Have you any figures that show the cost per ton per mile for the transportation of merchandise in countries where they have the macadam and telford roads?

Mr. PAGE. Yes; we have a great deal of information on that point. It decreases the cost very considerably.

The CHAIRMAN. What does it cost; do you know?

Mr. PAGE. You can not get below 10 cents a ton a mile under the best conditions.

The CHAIRMAN. How much does it cost to haul that same ton a mile on the ordinary dirt road the year around, taking into account the spring and fall, when the roads are bad, etc.?

Mr. PAGE. You want the average?

The CHAIRMAN. Yes.

Mr. PAGE. I should say—of course this is a mere estimate—

The CHAIRMAN. An approximation.

Mr. PAGE. An approximation—I should say about 35 cents, 30 to 35 would be the average.

The CHAIRMAN. That is a saving of about 67 per cent.

Mr. PAGE. We sent out a great many circulars some years ago, and we got back, I think, about ten or twelve thousand replies from all over the country, and the cost per ton per mile averaged twenty-four and a fraction cents, nearly 25 cents. Some of them would go as high as \$1.50 or \$2 a ton a mile in the winter months. The collection of information as to the mileage of improved and unimproved roads and the dissemination of the same results in a saving, it is believed, of approximately \$150,000 annually.

The CHAIRMAN. Does that include dirt roads and macadam roads and everything?

Mr. PAGE. That included everything.

The CHAIRMAN. You say the average was 24 cents?

Mr. PAGE. Yes. We did not differentiate. That was done several years ago, and we did not differentiate on the type of road at all. We simply asked how much per ton per mile they were over roads of all descriptions.

The CHAIRMAN. Inasmuch as there are a great many more miles of dirt road than there are of macadam and telford, that would rather indicate that the average cost of transportation over the dirt road was not 35 cents?

Mr. PAGE. Well, that was under practically the best conditions.

The CHAIRMAN. Oh, without taking into account spring and fall?

Mr. PAGE. Oh, no. In most sections of the country they do not haul at all then over the dirt roads. They give it up.

The CHAIRMAN. That is, those periods are prohibitive. Now, do you think of anything else, Mr. Samuel?

Mr. SAMUEL. No.

The CHAIRMAN. Do you, Mr. Zappone?

Mr. ZAPPONE. No, sir.

The CHAIRMAN. Do you wish to make any further statement about your Bureau?

Mr. PAGE. I do not think I do.

(Witness: Page.)

The CHAIRMAN. I think that covers everything, then. We are greatly obliged to you, Mr. Page.

Mr. PAGE. Mr. Chairman, I have a brief summary of the work done and some reasons for the work done by the Office of Public Roads.

The CHAIRMAN. That is all right; put that right in. (The summary referred to by Mr. Page is as follows:)

CONDITION OF PUBLIC ROADS.

The aggregate mileage of the public roads in the United States is approximately 2,300,000, not including Alaska and island possessions.

The total expenditures on these in 1904 approximated \$75,000,000, of which about \$15,000,000, or 20 per cent, was applied to permanent road work.

CAUSES.

In spite of this great outlay only 5.5 per cent of the roads are surfaced with stone, gravel, or other hard material. It is evident, therefore, that enormous sums of money are annually wasted in the administration, construction, and maintenance of roads, whereas the present outlay should, if properly applied, go far toward providing adequate transportation facilities in the form of improved roads, which are so necessary to our comfort and prosperity. The United States is far behind Europe in this character of internal improvement, while excelling in most others. The causes may be generally stated as follows:

1. Imperfect State laws.
2. Inefficient and improper administration and management of roads.
3. Ignorance on the part of local road builders of the principles and methods of road construction.
4. Ignorance of the qualities essential in road-building materials and lack of facilities for ascertaining such qualities.
5. Lack of sufficient research and experimental work to devise changes or improvements in road materials or existing methods of construction sufficient to meet peculiar conditions, reduce cost, or increase efficiency.

REMEDIES.

The remedies which should logically come from the National Government may be briefly stated as follows:

1. A general investigation, comparison, and explanation of existing road laws in order to provide legislators with all possible data upon which to consider improvements in existing legislation.
2. Investigation of systems of road administration and management and dissemination of the knowledge thus acquired with a view to the elimination of the worst features and the adoption of the best features in all parts of the country.
3. The introduction of proper methods of construction by familiarizing local road builders with the principles and practice essential to proper road construction and maintenance.
4. Investigation of quantity, location, accessibility, and relative value of road-making materials throughout the country and comparative tests to determine whether or not such materials possess the essential qualities.
5. Experimental and research work on a sufficiently large scale to cope with existing conditions and keep pace with the needs of the country in this direction.

All of the remedies above suggested are of such character as would be capable of being realized to the fullest extent only through the National Government. For the States to carry on such work would involve a personnel, equipment, and operating expenses by each State almost as great as would be required of the National Government, with a great amount of duplication in methods and results, and much confusion owing to conflicting conclusions and recommendations. Furthermore, there is ample precedent for investigative and experimental work by the Government and much contemporary example of such governmental activity.

(Witness: Page.)

That the work already done by the National Government along the lines indicated in the above-suggested remedies has not produced greater results is due to the fact that the appropriations have been small and the facilities necessarily limited. For several years after the establishment of the Office the appropriation remained in the neighborhood of \$10,000 annually. The results achieved by this Office are much more than commensurate with the facilities provided by the appropriations of Congress, and have followed in general the procedure indicated in the remedies above stated.

That road building is as much an agricultural problem as anything connected with the cultivation of soil or the raising of stock can not be questioned. The transportation of the farm products has a more vital bearing upon the profits of the farmer than any other factor, because it absolutely governs the market for his products. If it is the purpose of Congress to promote the welfare of the rural population and through them add to the wealth and prosperity of the country, the question of transportation facilities should not be overlooked.

(The committee thereupon adjourned until Tuesday, January 29, 1907, at 10 o'clock a. m.)

BUREAU OF BIOLOGICAL SURVEY.

JANUARY 25, 1907.

AFTER RECESS.

STATEMENT OF DR. C. HART MERRIAM, BIOLOGIST AND CHIEF OF THE BUREAU OF BIOLOGICAL SURVEY, DEPARTMENT OF AGRICULTURE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You are the head of the Bureau of Biological Survey?

Doctor MERRIAM. I am.

The CHAIRMAN. How long has that been a bureau?

Doctor MERRIAM. It has been a bureau for two years.

The CHAIRMAN. And have you been at the head of it all that time?

Doctor MERRIAM. I have been at the head of it for twenty-two years—since it was established as a division.

The CHAIRMAN. You were at the head of it at the time of its establishment?

Doctor MERRIAM. Yes.

The CHAIRMAN. And have continued as the chief of the division, and are now the chief of the Bureau?

Doctor MERRIAM. Yes.

The CHAIRMAN. Why was it transformed from a division into a bureau?

Doctor MERRIAM. Because of the importance of the work and the fact that it comprised three different lines of work, each of which was equivalent to the ordinary departmental division of the other bureaus.

The CHAIRMAN. Were you able to increase the efficiency of the Bureau and do more work under the bureau form than under the division form?

Doctor MERRIAM. That is a difficult question to answer explicitly. Bureau organization increases the dignity of the service and puts the several branches of the work on a footing similar to that in other bureaus. Before, we were at a disadvantage, because our chiefs of division were merely chiefs of sections. The men who had charge of the three important lines of work were paid smaller salaries than men occupying corresponding positions in other bureaus and labored under the disadvantage of lower rank.

The CHAIRMAN. Did the Government get any more results in the line of units of work or service rendered after the change was made from a division to a bureau?

(Witness: Merriam.)

Doctor MERRIAM. I think it did.

The CHAIRMAN. How are they able to do more under a bureau organization than they were able to do under a division organization? Just explain what practical, concrete things they are able to accomplish now that they were not able to accomplish before. Of course that is not predicated upon any increase of force that you may have had or increase of duties that have been devolved upon you; but I predicate it upon the same amount of work; that is, with no additional duties imposed. I will predicate it upon the exact condition that exists. How are they able to accomplish more units of result under the bureau system than under the division system?

Doctor MERRIAM. We were enabled by the bureau rank to secure a more systematic and effective organization. Before that we had no units of organization similar to the units afforded by the bureau organization.

The CHAIRMAN. Give us a concrete illustration. You have a division in your Bureau?

Doctor MERRIAM. We have grown up from a single division—the division of economic ornithology and mammalogy—by having other lines of work placed upon us by Congress.

The first was the Biological Survey. We were authorized to undertake a biological survey of the country in 1890. The work on the food habits of birds and mammals in relation to agriculture, horticulture, and forestry was what we started with. Superimposed on that was the biological survey element, which was added in 1890. Then, in 1900, when the Lacey Act went into effect, we were charged with the administration of Federal legislation relating to game, and were given administrative supervision of interstate traffic in game and the importation of animals and birds from foreign lands. Two years later we were given jurisdiction over the Alaska game law, and as game reservations have been established from time to time they also have been placed under our Bureau. So the scope of the work has been greatly increased. New duties have been put upon us, and we had grown from the division condition to the bureau condition long before we were recognized by name as a bureau.

The CHAIRMAN. That is just what I want to get at—the process and results of the evolution from the division condition to the bureau, with reference to results accomplished in the line of work done and to the value for the benefit of the service; that is, the value of the service rendered. Now, let me take one of your divisions. What is your leading division?

Doctor MERRIAM. We have three independent lines of work—geographic distribution, economic ornithology and mammalogy, and the last one imposed upon us, game preservation.

The CHAIRMAN. Let us take the geographic distribution. How many sections was that composed of before you changed from a division to a bureau?

Doctor MERRIAM. The work was carried on without any definite organization, in the same way that most of our work was carried on before, because we had not enough men to admit of a trenchant separation of the several lines of work.

The CHAIRMAN. Under the division system of administration, what did you call what is now the division of geographic distribution?

(Witness: Merriam.)

Doctor MERRIAM. We called it then, and call it now, investigations in the geographic distribution of animals and plants.

The CHAIRMAN. It is the same thing now that it was before; is it not?

Doctor MERRIAM. It is the same in its aims—in the kind of work it accomplishes—but it has a more efficient organization than it had before.

The CHAIRMAN. In what way?

Doctor MERRIAM. It has definite men assigned to definite tasks. It has a definite head, which it had not before.

The CHAIRMAN. Why could it not have had a definite head before, if it needed it?

Doctor MERRIAM. We were working on exceedingly limited appropriations, for which reason one man had to do more than one kind of work. This is true, also, to a considerable extent to-day.

The CHAIRMAN. All of that may be; but that does not prevent a proper executive organization, does it? That simply compels you to circumscribe your personnel.

Doctor MERRIAM. With a very small number of men, each doing two or three kinds of work, it is pretty hard to divide the work sharply by personnel.

The CHAIRMAN. How can you divide it any better under a bureau than you can divide it under a section?

Doctor MERRIAM. We had really almost a bureau organization before we were recognized as a bureau.

The CHAIRMAN. Then you had it pretty well systematized?

Doctor MERRIAM. We had it pretty well systematized, but not so well as we have this past year, since we have had the bureau rank.

The CHAIRMAN. I know; but the mere rank does not involve executive organization, does it—calling a thing by a different name and increasing the salary?

Doctor MERRIAM. Perhaps not; but it seems to me that it admits of a more efficient organization. We are certainly doing better work and doing the work in a more efficient way than we were a few years ago, before we had the bureau organization.

The CHAIRMAN. That is because it was not possible to have these heads that you now have?

Doctor MERRIAM. It was not practicable, and there were fewer of us to do the whole work.

The CHAIRMAN. Very true. But why was it not practicable to have the same heads, the same men looking out for separate and distinct investigations, prior to the bureau organization as it is now? What is there to it except having a man to look after a line of investigation, whether he is in a bureau or in a section or in a division? Where is the differentiation, so far as efficiency of results is concerned?

Doctor MERRIAM. I do not think of any hard-and-fast distinctions. A man works at a disadvantage when he feels that his position is a grade or two lower than that of corresponding positions in other Departments or in other branches of the same Department.

The CHAIRMAN. That is simply a question of compensation, is it not?

Doctor MERRIAM. It is a question of compensation, and of rank and title also.

The CHAIRMAN. Of course the question of compensation is the substantial proposition to the man that receives it; but the question of title is more a matter, perhaps not altogether of sentiment but, perhaps, of morale of the Department; is that it?

Doctor MERRIAM. Perhaps so, in its effect, both in and out of the Department and on the man himself. A man and the work he is doing are placed at a disadvantage in the way they are looked upon by the public if they have not a rank coordinate with that of corresponding workers and prices of work elsewhere.

The CHAIRMAN. Do you mean by that that the public discredited your results when you were a division?

Doctor MERRIAM. No; they did not discredit the results, but they did not regard a man, personally, if they did not know him personally, as having so strong a position, as being so important a man, if he were chief of a section, for instance, as if he were chief of a division or chief of a bureau.

The CHAIRMAN. Then that comes down mainly to a question of sentiment and morale, does it not?

Doctor MERRIAM. Yes; I think it does.

The CHAIRMAN. Is there any substantial distinction between the division organization and the bureau organization, except the question of sentiment and morale and the increase of the salaries of some of your men on account of the change from one to the other?

Doctor MERRIAM. I think there is a distinction. In the kind of work that the Biological Survey is doing, each of the three different lines of work corresponds with the old division—that is, each branch independently is equivalent to the old-time division. When three of these were brought together we had three divisions instead of one—in other words, something higher than a division.

The CHAIRMAN. But what I want to know is, how those three divisions accomplish more in actual results, in concrete work, turning out investigations, or whatever you do, under the bureau system than they did before. I want the physical result. Do I make myself plain?

Doctor MERRIAM. Yes.

The CHAIRMAN. I want to get the physical result—whether there is any substantial differentiation between the physical results attained under the bureau form of organization as compared with the division form of organization, or whether it is really substantially a question of morale and sentiment and feeling on the part of the men of the Department and an increase of their salaries, so that they will be on a par with other men in other bureaus. Now, which is it?

Doctor MERRIAM. I think that when you bring three coordinate units together, each of them as large as the old division unit was, you have something bigger; that the three together constitute a unit of higher value, which in this case is the bureau unit.

The CHAIRMAN. That is a unit of higher value in organization?

Doctor MERRIAM. Yes.

The CHAIRMAN. But the unit of higher value in organization is of very little consequence to the Government unless, under that unit, more units of result are accomplished.

Doctor MERRIAM. I think you get greater efficiency by reason of a better organization and of a better feeling on the part of the men

(Witnesses: Merriam, Zappone.)

who have charge of the different lines of work. Each one strives to do his best, perhaps even more than he did in his former position. Most technical men are good workers anyway, but it gives a stimulus to their work and puts them on their mettle to give them charge of a definite line of investigation, to give them a title that signifies to them. I think it gives the Government better results. I think the Government gets more out of it.

The CHAIRMAN. Can you state that concretely?

Doctor MERRIAM. I do not think I can.

The CHAIRMAN. How much increase in salaries did this bureau formation involve in your bureau two years ago?

Doctor MERRIAM. Very little. The three chiefs were brought up to \$2,500 each. Dr. T. S. Palmer, in charge of game protection, received this salary before and has not been increased. Vernon Bailey, in charge of investigations in geographic distribution, received an increase of \$100 (from \$2,400 to \$2,500), and Dr. A. K. Fisher, in charge of economic ornithology and mammalogy, received an increase of \$250 (from \$2,250 to \$2,500); in all, an increase of \$350. My personal salary as chief of bureau was raised from \$2,750 to \$3,000, an increase of \$250, making the total increase \$600.

The CHAIRMAN. Mr. Henshaw's salary seems to have been raised from \$2,500 to \$2,750.

Doctor MERRIAM. Yes; I have not mentioned Henshaw. He is assistant chief and administrative officer, who has charge of the office while I am away. I am in the field half of the year, and Mr. Henshaw has general administrative charge of the office. He is not one of the three chiefs who might be called division chiefs.

Mr. ZAPPONE. The difference in statutory salaries between the two years is \$10,270. That is, for the fiscal year 1907 the statutory salaries appear to be \$10,270 less than for the fiscal year 1905. But in the appropriation for general expenses for 1907, in which appears the lump-fund item for salaries, there is an increase of \$11,420, as compared with the fiscal year 1905.

The CHAIRMAN. That would make a net increase of about \$1,100?

Mr. ZAPPONE. A net increase of a little over \$1,100; yes, sir. And no doubt a number of positions on the statutory roll at that time were transferred to the lump-fund roll.

The CHAIRMAN. Are you and are your men who are under you receiving the same compensation that other men in relatively the same positions in the other bureaus are receiving?

Doctor MERRIAM. No; we are receiving lower salaries today than corresponding positions in other bureaus. My personal salary is \$3,000.

The CHAIRMAN. And the others are receiving \$3,500?

Doctor MERRIAM. Yes; \$3,500 or more in the other bureaus. The chiefs of the three lines of work carried on by the biological survey receive, as a maximum, \$2,500, while in other bureaus they receive \$3,000, or upward of \$3,000, I believe. So, relatively, our men are still considerably underpaid.

The CHAIRMAN. Is this bureau of yours organized under a special provision of the law, or is it simply an executive act on the part of the Secretary of the Department of Agriculture?

Doctor MERRIAM. It was organized by the House Committee on Agriculture in the appropriation bill.

The CHAIRMAN. In the appropriation bill?

Doctor MERRIAM. Yes; in the appropriation bill. It was originally so established, and has continued so; and the increase of rank from division rank to bureau rank was accorded us by the House Committee two years ago.

The CHAIRMAN. Is there any difference between the salaries of your men out of Washington and in—the same class of men doing the same kind of work?

Doctor MERRIAM. That question can hardly be answered in that way, because we have no men who are permanently out of Washington and comparatively few men who are permanently in Washington. Our men are in Washington part of the year and in the field part of the year. That applies to most of the men. There are a few who are here all the time; but most of us are in the field a part of the year, sometimes a large part of the year, and sometimes most of the year.

The CHAIRMAN. So that your force is interchangeable?

Doctor MERRIAM. It is interchangeable, and each man does more than one thing. The men working in geographic distribution are continually collecting data on economical ornithology and mammalogy—that is, on the food habits of birds and mammals with relation to agriculture, horticulture, and forestry.

The CHAIRMAN. Those are your three main lines of investigation?

Doctor MERRIAM. The three main lines of investigation are geographic distribution, including the determination of the life zones and crop zones, economic ornithology and mammalogy, a study of the food habits of the wild birds and animals of this country with respect to agriculture, horticulture, and forestry, and game preservation and protection, including the administrative charge of all matters coming under the Lacey Act, including interstate commerce in game. Then we also have administrative charge of the present Alaska game law, but hope to get rid of a part of that by a new law which is now before the Committee on Territories. This will be a great relief to us if it passes.

The CHAIRMAN. Are there any men on your rolls that are on the rolls of any other department, either in the Department of Agriculture or in any other Department of the Government?

Doctor MERRIAM. Certainly not. I supposed that was impossible. I did not know such a thing could be.

The CHAIRMAN. The law prohibits it, but people have discovered that that does not always accomplish the result, so I have asked these questions.

Doctor MERRIAM. Some of us have been detailed to do jobs outside, but have never received any additional compensation from the other bureaus or departments. I have myself been sent to Bering Sea as one of the first fur-seal commissioners, at great pecuniary cost to myself, without any additional compensation whatever. Others of our men have cooperated with other bureaus without additional remuneration.

The CHAIRMAN. Do you have any men that are engaged in private employment?

(Witness: Merriam.)

Doctor MERRIAM. None, if I understand you correctly. We have no men who are doing consecutive pieces of outside work—who are employed by any establishment or organization; but a number of our men occasionally give a lecture for pay, receiving from fifteen dollars up to forty or fifty dollars for a lecture, and one of our men for several years has taken a furlough and given a course of lectures before the Biltmore School of Forestry at the earnest request of the Forest Service.

The CHAIRMAN. Where is that—down in North Carolina?

Doctor MERRIAM. Yes; down in North Carolina. This man has taken a month's leave of absence to deliver this course on the economic relations of animals to the forest interests—a most important subject. Then, some of our men write articles occasionally for journals or papers, for which they receive small compensation. This is simply here and there. No regular work of that kind is going on.

The CHAIRMAN. That is incidental work?

Doctor MERRIAM. Yes; and by permission of the Secretary of Agriculture.

Mr. SAMUEL. Are those articles censored by you before publication?

Doctor MERRIAM. Not as a rule; there are so few of them. I am afraid I have given the impression that more of that goes on than really does go on. It is only very rarely that an article of the kind is written. I think one of our men writes popular bird articles occasionally for some of the newspapers. I never ask to see those. They are in a good cause, and if he gets \$5 for an article I am glad of it. I never ask him anything about it.

The CHAIRMAN. It is simply sporadic?

Doctor MERRIAM. Yes, and is done outside; at home. It is not done in office at all, and I think it helps us rather than harms us.

The CHAIRMAN. Do you have any trouble in keeping your force filled with good men?

Doctor MERRIAM. Very great trouble; and we never would have an efficient force except for the interest the men take in their own work. Many of our men have been offered positions paying from a few hundred dollars more to double their present salaries. That has occurred again and again. I have personally been offered more than double my salary outside. A number of my principal assistants have been offered remunerative positions and have declined to accept them because of their interest in the work they are doing here.

The CHAIRMAN. This work here, I suppose, gives them a drill that they can not get elsewhere?

Doctor MERRIAM. Yes; it gives them an experience under experienced men in the line of work that they want to make their life work, and they appreciate the facilities for work here, and are willing to work for less money, although some of them are very hard pressed to support their families. We have married men with children getting fourteen, fifteen, and sixteen hundred dollars, which is pretty small pay for trained, able men.

The CHAIRMAN. They really get education and training and development from the Government, and that is a thing that fits them for this private employment and makes them desirable, is it not?

(Witness: Merriam.)

Doctor MERRIAM. Yes; but some of them bring the training with them when they come to us. We have a number of times offered good positions—as good positions as we had to offer—to men who have declined to consider them. The position of first assistant (assistant chief) has been offered to two or three men who have declined to consider it because the salary is too low. We are obliged to take the best men we can get.

The CHAIRMAN. Is your force full now?

Doctor MERRIAM. It is as full as we have money to pay for. We have no vacancies, but we have a number of positions we would like to fill if we had the money to fill them with. In other words, a great deal of work is crowding which we are not able to handle at present because of our limited force.

The CHAIRMAN. What is it? What is the work that is crowding?

Doctor MERRIAM. It is in all three lines of the work. In the line of geographic distribution, the biological survey work proper, there are only three men who are competent to carry on the field work (competent by training, I mean, not by natural abilities), myself, Mr. Vernon Bailey, who has charge of the work in geographic distribution, and a younger man whom we are training, and who has done one or two very good pieces of work as a beginning. Such men are not to be had anywhere in the world. No college graduates men trained for that kind of work. We have to take likely young men and take them with us in the field year after year, and pick out those who are competent and let the rest go. I suppose we have had at least twenty-five men—I think that is a conservative statement—while we have been doing this work whom we have turned down as not competent for the head-work.

The CHAIRMAN. How many men have you turned down in the last five years as not competent to do the work?

Doctor MERRIAM. I can not answer that offhand, Mr. Chairman; but we have only three men to-day whom we can send in the field to any part of this country, to see what life-zone a particular area is in and what crops will grow in that area—in other words, to make the biological maps that we are making.

In another branch of the work, that of economic ornithology and mammalogy, the study of the food habits of birds and mammals with relation to agriculture, horticulture, and forestry, we have only three men and do not know where to get another. We would have to train him if we had the means to employ him. We feel that the work is most important. For three seasons we have kept a man working in the fruit orchards of the valley parts of California, studying the food habits of the birds that are of immense economic consequence to the fruit-growing interests of California. We find only a few birds that destroy fruit to any extent, but a vast number that prey upon the insects that are destroying the fruit and fruit trees. We find a very large number of birds, more than fifty, that feed on the scale insects; and as you know, the scale insects are among the most injurious insects to agriculture.

The CHAIRMAN. We were told by the chief of the Bureau of Entomology that he was importing birds for the purpose of taking care of those things.

Doctor MERRIAM. No; not birds, but parasites.

(Witness: Merriam.)

The CHAIRMAN. He told us he was importing birds for the purpose of taking care of the fruit orchards in California, I am sure.

DOCTOR MERRIAM. I think that is a mistake, Mr. Chairman. I think that is a serious mistake. That could hardly be done without my knowledge.

The CHAIRMAN. Unless my recollection is at fault, that is what he said.

DOCTOR MERRIAM. Did he not say ladybirds? The ladybird is a bug—a little beetle—not a bird.

Mr. SAMUEL. I think that is what he said.

The CHAIRMAN. Perhaps it was. Perhaps I thought that was a bird. Perhaps it was an insect, and not a bird.

DOCTOR MERRIAM. I simply wished, in reply to the inquiry, to show that we are short handed in this economic work, as we are in the geographic distribution work, because we have not enough trained men. These men must be able not only to know the birds in the field, to go into an orchard and make intelligent observations as to what the different species of birds are doing, but must be able also to examine the stomach content of the birds to find out exactly what they have eaten. In the case of birds of economic consequence, it is our practice to examine stomachs collected in every month in the year in different parts of their ranges, to find out what the real average food of each bird is in each locality throughout the entire year. We generally have several thousand stomachs of a group of birds before we report on that group—before we are willing to make a positive statement as to the economic status of that group of birds.

For instance, in our work on hawks and owls, we have examined about 5,000 stomachs. We find that the popular prejudice against hawks and owls is one of the calamities to the agricultural interests. We find that out of about 73 species and subspecies only 6 prey upon poultry, and that of these only 3 cut any figure as enemies to poultry, but the other 70 are damned for it, and the average farmer kills all hawks and owls whenever he can find them. There are three enemies to poultry among them. The others help the farmer by feeding on ground squirrels, gophers, and mice, and on grasshoppers and crickets and other injurious insects, from one year's end to another, thus doing continuous service for the farmer. Nearly 60 per cent of the total food contents of 5,000 stomachs consists of mice, ground squirrels, rabbits, and the pocket gophers that do such enormous damage in the West; and nearly 30 per cent consists of grasshoppers and crickets and other injurious insects, while the remains of poultry and small birds that we have found amount to only about 3½ per cent altogether. The destruction of hawks and owls, unintelligently, all over the country, is often the cause of devastating inroads of mice and other rodents that prey upon farm crops. Their natural enemies having been killed off, they have been allowed to increase, to the great disadvantage of the farmer. In some cases States have paid out hundreds of thousands of dollars in bounties on hawks and owls, killing off the most beneficial animals in their territory, paying for the destruction of the farmer's friends—of birds worth more to them, ten times over, than the money they have expended in getting rid of them.

The CHAIRMAN. Is this idea you have thus developed an original development of your Bureau, or is that a scientific fact that was known before that time?

Doctor MERRIAM. It was not known before; it is one of the results of the work of our assistants in this line of investigation. We have done and are doing similar work all the time in other groups of birds. Take the case of woodpeckers, for instance. Woodpeckers are often killed, particularly by the small boy, and often by the farmers in their orchards. We find that woodpeckers are the conservators of the forests; that forests could not exist without them. The woodpeckers feed on the tree-boring insects. The nuthatches and chickadees feed on other insects that injure trees. The woodpeckers have a hard bill and a long projectile tongue which is developed for the express purpose of reaching into holes in trees and getting out the grubs that are ruining the forests. If the woodpeckers were exterminated, there would probably be no such thing as a forest in this country.

The CHAIRMAN. Does that apply to hard and soft wood trees?

Doctor MERRIAM. It applies to every kind of tree—every kind of forest tree.

The CHAIRMAN. Before I pass that (and then I will take up the question of geographic distribution): Do you have any trouble about getting eligibles from the Civil Service Commission for any branch of your service?

Doctor MERRIAM. The greatest trouble in the world. The Civil Service can not supply eligibles for our higher technical positions; the kind of men needed are not to be had. We have to train men in the lines of our special work.

The CHAIRMAN. Let me ask you this: For what particular branch of your service do you call for eligibles where you have been unable to get the call answered?

Doctor MERRIAM. We have called for eligibles again and again through the Civil Service Commission. Nearly all our men have been obtained through the Civil Service Commission. We do not try to find men ready-made for these positions, because we know there are no such men to be had anywhere. We try to get men who have a general natural-history education, who are interested in our lines of work, and who have done a certain amount of it—men who know the mammals and birds of the country, and who know a good deal about plants and something about insects, and men, if possible, who are familiar with the chief topographic and physiographic features of the country—bright intelligent young men. We put such men through a sifting process. We generally start them in field work and see what they are good for.

The CHAIRMAN. Do you get them from the Civil Service Commission in the first instance?

Doctor MERRIAM. We are obliged to get them through the Civil Service Commission. After trying a number, every once in a while we get one whom we can keep and train to our work. We have failed to get an editor through the Civil Service Commission.

The CHAIRMAN. What is your method? Do you call on the Civil Service Commission—write a letter to them?

Doctor MERRIAM. Yes; the Secretary writes a letter to them

(Witness: Merriam.)

asking them to certify a man for the position, say, of assistant ornithologist, or assistant law clerk, perhaps, in the game-preservation work, where a man has to have legal qualifications in addition to a knowledge of the birds and animals.

The CHAIRMAN. And your experience has been that you have failed to get a response in many instances?

Doctor MERRIAM. No; not in many instances, but in certain instances. At other times men have been certified whom we have taken and trained and made available for our work; but we do not get them ready-made. That was the point I wished to make—that such men as we need do not exist ready-made and can not be supplied by the Civil Service Commission. We have to take the best we can get and train them.

The CHAIRMAN. Then, in other words, there are no classes in the curricula of the various institutions of learning that fit men for this particular sort of work?

Doctor MERRIAM. That is the fact, Mr. Chairman.

The CHAIRMAN. Below that do you have any trouble? That is, below these expert men do you have any difficulty in keeping your service full from the Civil Service Commission?

Doctor MERRIAM. We have no positions below those, except three or four clerkships. I think we have in all four clerks, and one of those is so of necessity rather than as a fact. Owing to the restrictions of the statutory roll, we have to transpose men now and then to keep money from reverting; and nearly every year we lose money in that way. If we can not keep a statutory position filled, it is of no use to us. We have now a clerkship at \$1,200 which we are filling with an ornithologist; but he does a certain amount of clerical work in keeping a record of the birds sent to us for identification. The Biological Survey identifies thousands of birds and mammals sent in to us from all over the country for that purpose. That has been an important part of our work from the first—identifying material sent in by farmers and young men all over the country. A great deal of such material comes from the schools, from both children and teachers in the schools.

The CHAIRMAN. That is in the line of the investigation of the economic value of these birds, and so on?

Doctor MERRIAM. Yes; they want to know what a bird or an animal is, and send it to us for identification. We name it for them and tell them something about it, and return it at once, so that they have the specimen. We do a great deal of that work. The clerk I have spoken of does that kind of work. He is an ornithologist and gets \$1,200. The reason he is a clerk instead of an assistant ornithologist is that there is a statutory clerkship at \$1,200 which we desire to keep full, as we are very short-handed and have not any money to spare.

The only other clerks are stenographers and typewriters. We have one stenographer at \$1,000 and one at \$900. We usually lose our stenographers as they become competent and trained in our work. If they turn out to be good stenographers, they are taken up by offices that pay higher salaries.

Mr. SAMUEL. Other offices in the Department, do you mean?

Doctor MERRIAM. Sometimes in our Department, and sometimes in other Departments. We have lost a number in our Department.

A year or two ago we lost the best man we ever had to the Bureau of Commerce and Labor. We could not pay him enough to keep him; they took him and paid him \$1,600. The loss of this man at that time almost laid us on our backs. He could do nearly twice as much work in a day as any other man we ever had.

The CHAIRMAN. What did he assume in the Department of Commerce and Labor?

Doctor MERRIAM. I do not know—he is a splendid stenographer, a competent man, a very rapid worker. We have lost stenographers right along; it is our experience dating back to the very earliest days of the work. They do not all go to other Departments. Some fit themselves for business or for a profession. Some of them take courses in a business college here, some study medicine, and some study law. We have had stenographers who have studied law and graduated and gone into practice. Others have studied medicine and gone into medicine as a profession; one of these went to the Philippines as a surgeon during the Spanish war.

The CHAIRMAN. That is true of a great many clerks, I suppose—that they come here and do clerical work for the purpose of paying their way while they are at the same time attending school and acquiring an education?

Doctor MERRIAM. Yes; and as soon as they become really useful to us, so that we lean on them a little, they get better salaries somewhere else, and we can not keep them; we can not hold them.

The CHAIRMAN. Can these young men and women under these circumstances, where they are carrying on courses of study in an institution of learning, either law or medicine, render as effective service to the Government as though they were devoting their whole time to the Government service?

Doctor MERRIAM. They devote all their office hours to our service, and do very efficient service. They attend the schools in the evening; it is evening work.

The CHAIRMAN. Very true; but does it not impair the efficiency of the clerk when a certain amount of his energy is spent outside?

Doctor MERRIAM. I think that would depend on the physical condition of the individual man. I am speaking altogether of men; not women. We have not had any experience of this kind with women. Our stenographers who have taken these positions are all men; they have been in good health, and have done our work satisfactorily to us, so that we did not complain about the work they did outside during their evenings. It is the efficient men who are ambitious to do this outside work. The poor men are satisfied to stay in their positions, and we let them drag along a while, until we finally decide that it does not pay.

The CHAIRMAN. Do you have any system of promotion in your Bureau?

Doctor MERRIAM. We have the regular Department system.

The CHAIRMAN. What is that?

Doctor MERRIAM. There is a board of promotion, and when we feel that we have one or two hundred dollars, possibly—rarely so much as that—that we can afford to give to some faithful, deserving assistant, we recommend his promotion. That recommendation goes to the board of promotion. They examine his efficiency record

(Witness: Merriam.)

on the blanks that are on file, and if they agree with my recommendation he gets the promotion.

The CHAIRMAN. Is the promotion based upon capacity to render additional service—service of more value to the Government than he is then rendering?

Doctor MERRIAM. It is based on efficiency. Most of our men, Mr. Chairman, are working for salaries several hundred dollars below the salaries paid for equivalent service in other bureaus and divisions in our own Department and throughout the public service. Our men are very much underpaid. We do not increase a man's pay so that he will do more work, but we try to pay him a little bit nearer what he is worth, because we realize that all of our men are underpaid now.

The CHAIRMAN. Should not the pay be graduated by the results rendered; by the units of work performed?

Doctor MERRIAM. Yes; and I should say that it is based on that very criterion now—on the service rendered. We have no system of graded clerks in the Biological Survey. We have only three clerks altogether.

The CHAIRMAN. You have not a great many clerks?

Doctor MERRIAM. Only these stenographers.

The CHAIRMAN. Now, you have your assistant biologists—3 at \$2,500, 2 at \$2,400, 2 at \$1,800, 2 at \$1,600, 2 at \$1,500, 2 at \$1,400, 3 at \$1,200, and 1 at \$1,000. Is there any distinction in the work these men do; that is, the units of result that the Government gets? If so, what is it?

Doctor MERRIAM. These men hold different positions; they are doing different kinds of work, and are paid in accordance with the results. We pay them at first the smallest salary that will hold them—generally a thousand dollars—and then work up from that gradually, according to their experience and usefulness to us; but the salaries are always away behind the value of their services to us. We realize that. We are not paying them anything like what they earn.

Take our field men, for example: In the Biological Survey proper I do not think we have ever had a man whom we have kept who has worked less than fourteen hours a day, and not infrequently sixteen hours a day. Such men are paid from \$1,200 up, and are doing faithful, efficient work, and working just as hard as they can, and giving us their whole time and their whole energy and their whole ability.

The CHAIRMAN. What is this geographic distribution that is one branch of your work?

Doctor MERRIAM. It is a study of the distribution of our native plants and animals, with a view to determining the natural life areas and belts of this country in relation to their availability as crop belts. When we undertook this study some years ago there was no accord among naturalists as to what the life areas of North America were. Will you permit me to show you a few maps illustrating what I have to say? I am glad to have an opportunity to explain this matter, because it seems not to be generally understood here.

The general underlying fact that the distribution of wild animals and plants and of cultivated crops is dependent on climatic conditions

(Witness: Merriam.)

was recognized by Humboldt long ago. But the carrying out of that idea in its details, so as to make it of practical value to agriculture, had not been done.

When we undertook the work, about 1889, there was no accord among naturalists as to what the natural life areas of America were. The zoologists had suggested various regions, according to the groups they had studied, in the light of the data then available, and the botanists had suggested other regions. To show this, I have brought her two maps, one prepared by Professor Baird, a former secretary of the Smithsonian Institution, based on birds, and another prepared by Professor Sargent, based on forest trees. You see how widely different they are. The reason they are so different is not that Baird and Sargent would have come to widely different conclusions if they had had the same facts, but that at the time their maps were made the facts of distribution in this country had been very imperfectly worked out. Different men had theorized on distribution for many years, and had published maps embodying those theories; but no one really knew the facts of distribution. We in the Biological Survey believed that there was something here of great practical value to agriculture. We believed that inasmuch as plants and animals are limited in distribution by climatic conditions, and inasmuch as crops also are limited by the same conditions, there must be a correlation between the areas of distribution of wild species and the areas adapted to particular cultivated crops.

Secretary Rusk believed this also, and authorized us to make an experimental biological survey, which we did in 1889. As an outgrowth of that survey, I prepared and published in 1890, a provisional bio-geographical map of North America, which has since passed through four corrected editions.

We began by assembling the facts of distribution without preconceived ideas, studying on the ground, in various parts of the United States, the actual distribution of our native plants and animals. From these studies we have established the fact that animals and plants are controlled by the same climatic conditions, of which certain temperature factors are the dominant controlling elements, and certain humidity conditions are secondary. We have established the fact that animals and plants are distributed in the same belts, and that the belts occupied by any assemblage of animals and plants in a state of nature are in themselves adapted to particular crops; and we have published a bulletin enumerating the crops that are best adapted to each zone, and to some of the minor subdivisions of each zone, accompanied by a colored map of the United States showing the location of the zones.

The CHAIRMAN. We have been shown a map of the soil area of the United States, prepared by the Bureau of Soils, which is intended to indicate the location of all the fertile soil. In what way are your investigations of utility to agriculture, unless they are coterminous with the soils thus discovered by the Soils Bureau?

Doctor MERRIAM. One stops where the other begins. The soil survey is a survey of local details. Ours is a general survey of the life or crop belts of the whole country.

The CHAIRMAN. But let me put this question: There is a circumscribed area in some sections of the country where they give the fertile

(Witness: Merriam.)

soil, or soil which is tillable—capable of cultivation—on their map. Of what particular value to agriculture is it for you to go out beyond that area for the purpose of ascertaining about plants and animals? If the Bureau of Soils have made a thorough investigation, and disclosed the presence of soils that are fertile or can be made fertile, what occasion is there for going outside of the areas that they have delimited with any further investigation that is going to produce any results for agriculture?

Doctor MERRIAM. That question, I think, is easily answered. Suppose you have the same kind of soil in Florida that you have in Maine. You know as well as I that the same crops will not grow on that soil in Florida that grow on it in Maine. The soil work is of the utmost value in determining what soils are adapted to each kind of crop, and therefore exactly what crops will grow in each part of each of the great transcontinental life zones or belts. The primary controlling elements governing the distribution of plants and animals, including crops of all kinds, are climatic—temperature and humidity. We lay down on our maps the general belts of distribution with their subdivisions and publish lists of the crops adapted climatically to each of these belts and subdivisions. Now, the Soil Survey comes in and takes up the details within these zones. It shows which of the crops, climatically possible in a zone, will grow on each kind of soil in that zone. That work ties on to ours and adds to its value.

The CHAIRMAN. Which is the original investigation, yours or that of the Bureau of Plant Industry?

Doctor MERRIAM. Ours. The Bureau of Plant Industry has never done anything of this kind.

The CHAIRMAN. Or does yours have any relation [or benefit to the work of the Bureau of Plant Industry?

Doctor MERRIAM. Most certainly. It gives them working maps which serve as a guide in the introduction of crops from foreign countries and in the transplanting or extension of crops from one area of the United States to another. They see by our maps where the same climatic conditions are to be found; they see what areas are adapted by nature to the same class of crops.

The CHAIRMAN. You do not make any surveys?

Doctor MERRIAM. We are making surveys all the time—not topographic surveys, but biological surveys. We base our maps on actual field work. We have men in the field all the time, and have had for twenty years.

The CHAIRMAN. Why can not the Bureau of Soils, when they make a survey and locate soil, at the same time locate the climatic conditions and the character of the animal life and plant life?

Doctor MERRIAM. If they had trained naturalists who understood this work, they might do it. The point is that this is the special work of the Biological Survey. We began it a great many years ago, and have continued it ever since.

The CHAIRMAN. Would it be practicable to have one man capable of doing both those things?

Doctor MERRIAM. No one man would be likely to have the knowledge necessary. Our men, whom we send into the field, know the mammals, the birds, the reptiles, the trees, and the shrubs. That means that they know several thousand species. When they see

(Witness: Merriam.)

an animal or a plant in the field they can not go to libraries or museums to find out what it is. They must know it when they see it. That is the reason we have such difficulty in training men for this work.

The CHAIRMAN. What is the reason that a man in the Bureau of Soils can not acquire that same information by examining those things cotemporaneously when he is delimiting the soil?

Doctor MERRIAM. If his bent runs that way he might; but I suppose that he, like the rest of mankind, has his special adaptations; that special lines of work appeal to him, that all his time is taken up in his own work, and that no time is left to fit himself to do this other thing which he has not learned to do, which is in itself a life work, requiring severe special training—so much training, indeed, that very few men ever fit themselves for it.

The CHAIRMAN. How does agriculture get the benefit of this geographic distribution in connection with your Bureau?

Doctor MERRIAM. Every area in the United States that can be defined as a natural-life area—either a transcontinental belt or a division of a transcontinental belt—is inhabited in a state of nature by some association of plants and animals. Every such area has special crop adaptations; and it is of immense value to agriculture—I should say of the highest value to agriculture—to know what these crop adaptations are. Such knowledge saves the expenditure of hundreds of thousands of dollars annually that otherwise would be thrown away in vain attempts to make crops grow in areas by nature unfitted for them.

The CHAIRMAN. Does not the Bureau of Plant Industry engage in that kind of work all the time—plowing up plots and experimenting with plants in various localities?

Doctor MERRIAM. The Bureau of Plant Industry is doing magnificent work, but it is very different in character from the work the Biological Survey is doing. The two kinds of work supplement each other. We lay down the broad, transcontinental zones and their principal divisions from a study of the native animals and plants. I have here a number of individual species maps, showing the distribution of different animals. For instance, this map shows the distribution of the large skunks of the United States—the different species of big skunks.

The CHAIRMAN. Of what commercial value is that discovery?

Doctor MERRIAM. By getting together a number of species maps we are able to coordinate them and make what might be called a composite of them. We look for coincidences in the areas of distribution of mammals and birds and forest trees or desert shrubs, and when we find such coincidences we know that the area in question possesses some quality that other areas do not possess, and the inference is that it has some special crop adaptation. Then we try to find out what that crop adaptation is, to give the farmer the benefit of it.

The CHAIRMAN. In the case of the skunk areas, what does the discovery or the survey of these skunk areas indicate—what conclusion?

Doctor MERRIAM. That is hardly the right way to put it. It is not a survey of the skunk areas; but by studying the country we find out incidentally what areas the different species of skunks inhabit, along with the different species in other groups.

(Witness: Merriam.)

The CHAIRMAN. When you locate the skunk, of what use is it?

Doctor MERRIAM. When we delimit these areas we learn that they possess certain properties which differentiate them from other areas and adapt them to certain agricultural uses.

The CHAIRMAN. What agricultural uses are served by the discovery of the skunk area to which you called our attention? What is the use of that? What does it show? How is that of any benefit to the farmer?

Doctor MERRIAM. It is only one of a number of similar cases where, by mapping the distribution of many species, and by coordinating the maps, the resultant zone maps, with their subdivisions, are produced.

The CHAIRMAN. Then the information in relation to the skunk area is of no specific value until you can—

Doctor MERRIAM. By itself it is of comparatively little value.

The CHAIRMAN. Until you can assemble it with a lot of other facts?

Doctor MERRIAM. Yes; that is just the idea. These species maps are pieces of work that contribute toward a definite end.

The CHAIRMAN. Do you have any other wild animals that are, in point of territory, coterminous with the skunk?

Doctor MERRIAM. Yes; we have individual species in other groups. The skunks, as a group, inhabit the whole country—from the Atlantic to the Pacific. That map simply shows the areas occupied by the different species. In our economic work—

The CHAIRMAN. Let me get some further information on that matter, because this is a concrete question and I can understand it better. Of what consequence is it to find out the different species of skunks in that area? That is, how do you get any benefit from it? How do you get a concrete result that redounds to the benefit of agriculture from ascertaining the existence of those different species? Of course it is an interesting fact, you know; but what I want to know is, of what value is the fact? What conclusions flow from it?

Doctor MERRIAM. As I said before, in the case of the zone work, the skunk map is simply a contributory piece of information that we want in connection with other pieces of information of the same kind, enabling us to map out the natural areas into which this country is divided for agricultural purposes. But in the case of many animals these detailed maps are themselves of great value, as in the case of the wolves and ground squirrels and prairie dogs and other noxious species.

The CHAIRMAN. Just show me that skunk map again, so I can get right at it, so as to get the idea.

Mr. SAMUEL. What do these different colors represent?

Doctor MERRIAM. They represent different kinds of ground squirrels that do great damage in the West.

The CHAIRMAN (returning to the skunk map). These orange-colored areas are the areas of the different species of skunks? Is that right?

Doctor MERRIAM. Yes. Each color patch on the map indicates the area inhabited by a different form of skunk. We will not call them all species, but forms.

The CHAIRMAN. Well, no matter whether it is form or species; but, at any rate, that is where he has his "local habitation and a name?"

Doctor MERRIAM. Yes; that is where he lives.

The CHAIRMAN. Are there any other animals whose local habitations are coterminous with that of the skunk?

Doctor MERRIAM. Yes; that is just it. There are many.

The CHAIRMAN. Where are they? Show me a map that you can superimpose on this one.

Doctor MERRIAM. We can not superimpose on this any single map that will agree in all its details, partly because of unworked country, but chiefly because we have no exactly comparable map of a group of animals covering practically the whole country and at the same time splitting up into the same number of "species" or "forms" inhabiting exactly the same areas; but we have maps that show these same areas as inhabited by species of other groups.

The CHAIRMAN. Where have you a map that shows practically the coterminous area that is inhabited by any other particular animal but the skunk, so that we can look at it and make the comparison? I suppose you have to have coterminous elements in reaching a generalization, have you not?

Doctor MERRIAM. Yes.

The CHAIRMAN. That is, if you have to assemble these various elements, the areas over which you make your experiments in gathering data should be coterminous. Otherwise, if you swing out here with an area and then out here with an area, you will throw your equation all out of alignment.

Doctor MERRIAM. We are studying the whole country, and by comparing a large number of individual species maps we see at a glance where the areas of coincident distribution are.

The CHAIRMAN. I understand that you have found the skunk practically all over the country?

Doctor MERRIAM. Yes; in one form or another. The skunks that inhabit the higher, more northern, and colder regions are very different in species from those that inhabit the warm, southern regions.

The CHAIRMAN. That is a matter of climate?

Doctor MERRIAM. That is a matter of climate, and climate governs agriculture as well as wild animals and plants. Climate limits the areas in which it is economical to cultivate particular crops.

The CHAIRMAN. You determine the various temperatures by the presence or absence of certain wild animals and the forest fauna, as I understand you?

Doctor MERRIAM. Yes, in part; and we also——

The CHAIRMAN. Now, does not the Weather Bureau take all these temperatures? Do they not make all these observations and get all these facts also, so far as the temperature is concerned?

Doctor MERRIAM. Yes; the Weather Bureau collects the facts on which climatic studies are based. They have furnished us the temperature data and we have assembled these data in such form that they are of value to agriculture. We have worked for many years on the problem of the laws of temperature control of the geographic distribution of life, until finally we succeeded in formulating the laws of temperature control. The Weather Bureau has furnished us with the temperature computations we asked for, and we have platted them on maps and have found that they coincide with our life-zones. We have a map that is practically identical with the zone map, showing the distribution of temperatures. We have found

(Witness: Merriam.)

that species of southern origin—plants and animals that come in from the South and crops that require warm climates—require a certain total quantity of heat for the season of growth and reproduction. By plating the sum of the temperatures for the whole year for a very large number of localities, we have been able to draw isotherms, or lines of equal temperature, which coincide with the zone boundaries of the zones of southern forms of life. But they do not conform to the zones of distribution of northern forms—of species that come in from the North. After studying a long time and plating a great many temperatures, we found that it was the mean temperature of the hottest part of the year—a brief period in midsummer—that acted as a barrier to the northern species in pushing south, and we were then able to plat temperatures—

The CHAIRMAN. Is not that an obvious fact, without spending time to investigate it—that an animal born in a cold climate would be prevented from going into a hotter one by the hottest weather?

Doctor MERRIAM. Yes; but we wanted to find out what the controlling temperatures actually were, so that we could reduce them to figures and plat the results on a map.

The CHAIRMAN. Do you think that the location of the lines of temperature and conditions of heat and cold can be as accurately demonstrated by the presence or absence of certain wild animals as it can by the investigation of the Weather Bureau, which takes the actual temperature?

Doctor MERRIAM. Yes; very much better, because it is impossible for the Weather Bureau to have such a multitude of stations as would be necessary to distribute them all along the zone lines. The great bulk of the stations lie in two or three zones, and only a few are just where we want them. Besides, the temperatures ordinarily computed by meteorologists are the mean annual temperatures, which are not those most serviceable to agriculturists. The agriculturist wants two things: The total quantity of heat for the season of growth and reproduction and the mean temperature of midsummer. These are the temperatures that concern him.

The CHAIRMAN. How are you going to get those from animals?

Doctor MERRIAM. We get our temperature data from the Weather Bureau and plat them on maps which agree with the maps showing the distribution of animals and plants. From a study of the temperature data, which the Weather Bureau has been kind enough to compute for us, we have learned what the actual temperature factors are and have reduced these to figures and platted them on maps. That completes the study in a general way.

The CHAIRMAN. Is it not very much better to have the actual than the hypothetical?

Doctor MERRIAM. We have both. That is what we are striving for.

The CHAIRMAN. But when you have the actual, what is the occasion for the hypothetical? Is it not a question of disclosing temperature?

Doctor MERRIAM. I do not understand your question.

The CHAIRMAN. If you get the actual temperature from the work of the Weather Bureau, what occasion is there for any more temperature, or any more investigation on the line?

(Witness: Merriam.)

DOCTOR MERRIAM. When the Biological Survey undertook this work the laws of temperature control of the geographic distribution of animals and plants were unknown. We asked the Weather Bureau for certain temperature data, which they kindly furnished. This enabled us to study the problem, and we finally succeeded in working it out.

THE CHAIRMAN. But the Weather Bureau has practically all that data, has it not?

DOCTOR MERRIAM. It had the data necessary for solving the problem, but had not worked out the problem. That problem was worked out by the Biological Survey through the cooperation of the Weather Bureau.

THE CHAIRMAN. What do you rely on when you work up your isothermal zones? Do you rely on the actual results from the Weather Bureau, or the more or less indefinite and uncertain results of the migration of certain animals whose habits you have described?

DOCTOR MERRIAM. The isothermal maps are based on temperature data. The life-zone maps are not based on the movements of migratory animals, but on the presence of animals and plants that do not migrate but stay in the same place all the year. Previous to our work the temperature data had never been assembled in such manner as to bring out the coincidences of temperature distribution with the actual zone distribution of animals and plants. We wanted to know whether the temperature at one point in each zone was the same as in another part; we wanted to find what these temperatures were and how they could be expressed in figures, and we have finally succeeded in working that out.

THE CHAIRMAN. What did you use as your basis for working those temperatures out?

DOCTOR MERRIAM. We used the ordinary temperature records, and in plating them made a great many tentative experiments, taking temperatures for different periods of the year and computing them and placing them on maps.

THE CHAIRMAN. Were those temperatures taken with instruments?

DOCTOR MERRIAM. Yes; they were the regular recorded temperatures; but we were in the dark as to what set of temperatures—

THE CHAIRMAN. Where did you get those records; from the Weather Bureau?

DOCTOR MERRIAM. Yes; we asked the Weather Bureau for the temperature data. I had worked on the same problem in New York State years ago, before I came here, and had computed thousands of temperatures there, and had platted them on maps, but I did not succeed in working out the problem until some years after I came here.

THE CHAIRMAN. After having worked it out what use is made of that result?

DOCTOR MERRIAM. The use is to enable us to state what temperature units are required by the different native species and the different cultivated crops. This may be expressed in temperature units, and may be shown on maps. In many cases a valuable crop will be a commercial success in an area comprising parts of two adjoining life zones where certain conditions of temperature and humidity prevail. We are trying to mark out all such areas for the benefit of the practical farmer who wants to know when he goes into a new country

(Witness: Merriam.)

what he can grow on his farm without the necessity of expending thousands of dollars in experimenting with crops which may or may not grow there at all.

The CHAIRMAN. You make practical experiments, do you, for the purpose of ascertaining under what conditions plant life will develop and come to maturity? Is that it?

Doctor MERRIAM. No. We find out by a study of the native fauna and flora what and where the natural areas and their subdivisions are, and show these on maps. Then we ascertain what crops grow in the several areas as a commercial success. We do not care what crops grow in hothouses or under peculiar conditions, but endeavor to ascertain what crops are of real value to the farmer in each area. We publish a list of these crops in connection with maps showing the location and extent of the areas.

The CHAIRMAN. But what is the Plant Industry Bureau doing all this while in that same territory?

Doctor MERRIAM. The Bureau of Plant Industry is doing no work of this kind, so far as I am aware, except that, in introducing plants from one country to another and recommending the introduction of plants from one part of the United States to another, it has the advantage of our maps. It has the advantage of our work as far as—

The CHAIRMAN. Are they not making practical experiments in the growth of plants in various sections?

Doctor MERRIAM. Certainly.

The CHAIRMAN. For the purpose of ascertaining whether the climatic conditions are favorable and whether the soil is desirable? Are they not doing that all the time?

Doctor MERRIAM. I am not familiar with the details of their work, but it is along lines entirely different from ours. We do not overlap, but one bureau furnishes the other important information—the work of one supplements that of the other. The Bureau of Plant Industry does none of the work we are doing in mapping the life areas; that is the work of the Biological Survey.

The CHAIRMAN. Who began the work? Does your bureau precede?

Doctor MERRIAM. It not only began it, but is the only bureau doing this kind of work.

The CHAIRMAN. It precedes all of them?

Doctor MERRIAM. Yes.

The CHAIRMAN. Yours is the fundamental proposition?

Doctor MERRIAM. Certainly. The Biological Survey establishes the broad transcontinental belts and the minor areas within those belts that are climatically adapted for different kinds of crops; but it does not go into matters of detail, such as local soil conditions, nor does it have anything whatever to do with experimental work with plants. That comes under the Bureau of Plant Industry. We do nothing at all of that kind.

The CHAIRMAN. Suppose, for instance, you get the results of the thermometer from the Weather Bureau in a certain locality, which would indicate, of course, a certain temperature, and you did not find present there the wild animals that according to your investigations should be in that temperature, what data governs—the absence of the wild animals or the presence of the actual temperature?

Doctor MERRIAM. We have never had any such case.

The CHAIRMAN. They have always been coterminous?

Doctor MERRIAM. Yes; we map the distribution of animals and plants as they actually occur in nature, and find that the resulting belts and areas possess definite temperature conditions, as already described.

The CHAIRMAN. That is what is called geographic distribution?

Doctor MERRIAM. Yes; this is called geographic distribution. From the study of our native fauna and flora we have been able to discover the laws governing the distribution of animals and plants, and have been able to lay down on maps certain zones and areas which prove to be adapted to certain agricultural products.

The CHAIRMAN. Has there been any movement of population resultant upon the publication of any of your investigations?

Doctor MERRIAM. I do not know of any. I do not see how this could produce any large movement of population.

The CHAIRMAN. How does the agricultural community get the benefit of this work that you are doing?

Doctor MERRIAM. It gets the benefit of it from the study of our maps and publications. Our maps have been generally adopted. Our life zones, as we have laid them down, have been accepted by the technical zoologists and botanists, where before there was no accord among them. They have accepted our work; the agricultural experiment stations have accepted it; the physical geographers have accepted it and have put our maps in their text-books, and the results of our work are taught in the schools. In other words, there is now accord as to the principal life areas of the country and their principal subdivisions. Some of the subdivisions yet remain to be worked out.

The CHAIRMAN. If the results of your investigation do not induce migration, and do not lead to the occupation of this territory, what particular advantage does agriculture, per se, get from it? I can understand how these educational benefits may flow from it.

Doctor MERRIAM. The territory is occupied now, Mr. Chairman, except the arid lands, parts of which are now coming under cultivation. We try to help the farmer by letting him know what crops are likely to be a commercial success in his area. As a matter of fact we have been asked by the Reclamation Service as to the availability for agriculture of a large area in the Carson and Humboldt Sink country in Nevada, which has been recently reclaimed by putting through the Truckee Canal, taking the Truckee River out of its course near Wadsworth and sending it down into the Carson Sink country.

The CHAIRMAN. They asked you what?

Doctor MERRIAM. They wanted to see the results of our work in Nevada, to get our zone map and our lists of crops suited to that area, so that people going in there would have the benefit of this work. The same is true of the reclamation work in Arizona. We of course cordially cooperated with them in giving them this information, and we are also endeavoring to help them in the destruction of injurious rodents.

The CHAIRMAN. Yes; that is another branch of work. Is not the development of the character of plants that can be profitably grown in a certain territory a matter peculiarly for the Bureau of Plant Industry?

(Witness: Merriam.)

Doctor MERRIAM. Not if I understand the question. In a general way our maps give that information. Our work saves the necessity of making thousands of experiments all over the country to find out what crops will grow in a particular place. When the Agricultural Department was distributing seeds in the years when I first came here, it had absolutely no guide to the distribution of the vast quantity of seeds that it was sending out every year. It would send seeds of certain varieties to places where such seeds could not possibly be of any commercial value. That was done, and the Department felt the embarrassment of it. Our maps enable the Department to distribute seeds to the right regions—to the regions where each particular variety is likely to succeed and be of some commercial value.

The CHAIRMAN. But to those of us who do not believe in the distribution of seeds that does not appeal with great force. What do you call these maps that you make?

Doctor MERRIAM. We call them zone maps. The general maps are zone maps of the United States. We are also engaged in the preparation of larger scale zone maps of the several States and have already published the one on Texas.

The CHAIRMAN. Are these zone maps the only sources of information the Department of Agriculture has on that point?

Doctor MERRIAM. Yes; the zone maps and the tables of crop adaptations that go with them. We distribute a colored zone map of the United States in the bulletin containing the lists of crops adapted to each area so far as yet worked out. Our detailed maps of distribution are very helpful in combating the destructive ravages of injurious animals, like the ground squirrels and prairie dogs and wolves and coyotes and various other noxious kinds.

The CHAIRMAN. Why is that—because they locate them?

Doctor MERRIAM. Yes. The Bureau of Entomology found out some years ago that our maps showed in advance where an injurious insect that was spreading on a particular crop would go, so that they could forewarn the people in that belt against its approaching inroads. That is because an insect, in spreading from one place to another, will follow the life zone that it belongs to and will go nowhere else. When one of the scale insects was coming east, the entomologists found our maps of much service, and entomologists have republished our maps in their own reports to show where certain insects go. Similarly, it was found that yellow fever is limited by a zone published on one of our maps eighteen years ago.

The CHAIRMAN. Is that a climatic proposition or a question of an insect?

Doctor MERRIAM. It is a climatic proposition that governs the distribution of the mosquitoes responsible for the disease of yellow fever. So with various malarial fevers, and so with diseases of cattle.

The CHAIRMAN. How long ago was it that you published that map which contained the yellow-fever zone, discovered by ascertaining the zone over which the mosquito flourished?

Doctor MERRIAM. Eighteen years ago. We did not know then that it was a yellow-fever zone or a mosquito zone. We mapped it from the distribution of mammals and birds and trees. The entomologists and the medical men have found out recently that the

disease is confined to the belt in question. They have found that the disease is restricted to this belt.

The CHAIRMAN. That was a coincidence?

Doctor MERRIAM. It was one of a number of facts that are coming to light every day to show that this work is accurate and that it means a great deal for mankind. If you can tell beforehand where an outbreak of yellow fever is going, you may save the country millions of dollars and hundreds of lives, just as the work we have recently done on wolves may save the stockmen of the West two million dollars' worth of stock this year.

The CHAIRMAN. With reference to the yellow-fever zone, was not that zone delimited by a careful inspection of the area over which this mosquito that transmits the fever traveled and lived?

Doctor MERRIAM. That had not been done. Recently, in getting data bearing on the problem, it has been found that all the spots where there have been outbreaks of the disease, and where this mosquito lives, are in a certain definite life zone.

The CHAIRMAN. Yes; but how did your investigations throw any light on that proposition?

Doctor MERRIAM. They established the existence of the belts which control the distribution of life. This is being recognized more and more every year.

The CHAIRMAN. And it turned out that that happened to be the yellow-fever belt?

Doctor MERRIAM. Yes; the belt of yellow fever and of various other things.

The CHAIRMAN. Have you developed any other belts than that one?

Doctor MERRIAM. Yes; we have developed belts throughout the country.

The CHAIRMAN. I mean that involved the yellow-fever proposition?

Doctor MERRIAM. No; there is only one in which yellow fever occurs.

The CHAIRMAN. That is down around the Gulf?

Doctor MERRIAM. Yes; and it extends up the Mississippi to about St. Louis and up the coast to the mouth of the Chesapeake.

Here is a map showing the distribution of the ground squirrels, which are extremely destructive to crops in the West. In eastern Oregon and Washington two species of ground squirrels are said by those who live in that part of the country to cause a damage of several million dollars a year. In Whitcomb County, State of Washington, they put the annual damage at half a million dollars. We have undertaken the destruction of those two species of ground squirrels and have had men working there for two years experimenting with trapping and poisoning and fumigating and various ways of getting rid of them. We have finally undertaken the study of bacillic diseases and have obtained cultures of a disease that destroys one of the two species. By means of this disease in the limited area of eastern Washington, Oregon, and northern Idaho we hope to save the farmers a million dollars this year—perhaps more than a million dollars.

(Witness: Merriam.)

The CHAIRMAN. Right there, why is not that a question for the Bureau of Animal Industry? Do they not carry on investigations of a cognate character?

Doctor MERRIAM. Yes; they study the diseases of domesticated animals, but they have never done this kind of work, which has for its object the destruction of our native noxious animals. They have such a big field and so much to do that although I have been trying to get them to undertake this work for perhaps fifteen years they have never done it, but we have undertaken it and are doing it with their hearty cooperation. They have been very courteous to us, and their men have assisted us in laboratory work here in keeping the cultures alive.

The CHAIRMAN. Certainly. Your idea is that while these are matters legitimately within the scope of the Bureau of Animal industry, on account of the conditions in relation to the size of the Bureau and the work devolving upon it, you have been doing this and taking it up more or less as a matter of accommodation to them, with their cooperation and collaboration?

Doctor MERRIAM. Their work relates to domesticated animals; ours to wild animals. Their work along this line has for its aim the prevention of diseases that destroy valuable domesticated animals; ours has for its aim the cultivation of diseases that destroy noxious wild animals. We have asked their assistance in one method of ridding the West of these terrible animal pests—pests that are holding the country back by levying such a tax on the annual cash output.

The CHAIRMAN. There is no question about that phase of it. The only question I had in my mind was whether these different investigations were properly distributed.

Doctor MERRIAM. If you separated them, the Biological Survey would still have the trapping and the poisoning, the fumigating with bisulphide and other fumigators, and all the other methods that are used for destruction. These would still properly remain in our hands, because there is no other bureau that does anything of the kind, and the bacillic diseases alone would come under the Bureau of Animal Industry, because that Bureau handles problems of that character. Our men are centering every available means on the destruction of rodent pests. In the case of prairie dogs—

The CHAIRMAN. Before you leave the squirrels, how is the destruction of the squirrel facilitated by the simple discovery of the area over which he travels and in which he lives?

Doctor MERRIAM. That is a very practical question. The geographic area inhabited by an animal limits absolutely the damage that that animal can do. The habits of the different kinds are often widely different. Some of the ground squirrels feed mainly on seeds and wheat; some feed largely on grasshoppers and crickets, and some kill poultry. Some do one kind of damage and some another. Some are easily destroyed; others with great difficulty. It is important to know exactly the limits of distribution of the various wheat-eating species, because some of them do so much damage as to justify the expenditure of considerable money in holding them in check. We want to show the areas inhabited by each of the species that does this

damage. Then the farmers outside of those areas can say: "We do not care anything about that squirrel. It will not trouble us. We can go ahead and raise wheat here and will not be bothered by it."

The CHAIRMAN. Is not that a fact that is about as obvious as that the sun rises and sets? If a farmer has been running his farm and the squirrels do not trouble him, does he not know it?

Doctor MERRIAM. But there are a great many species of squirrels, and some trouble the farmer in one way and some in another. There are more than fifty species and subspecies of these ground squirrels in the United States. Their habits are not the same, and their destructive inroads can not be met in the same way.

The CHAIRMAN. Have you found a disease that will attack certain species and will not attack the others?

Doctor MERRIAM. Yes. The bacillus that we are using now, operating in eastern Oregon and Washington and northern Idaho, kills only one of the two species that are eating the grain crops there. That is one of the curious things about bacillic diseases—that some species are immune from their action, while others are quickly killed. We introduced last year a species of bacillus from France that we had great hopes of; but we found it perfectly worthless. We could not accomplish anything with it. But with the aid of the Washington Experiment Station we obtained a natural disease that kills some of these animals in the West, and by using it—

The CHAIRMAN. Does it kill them indiscriminately, or does it pick out the injurious ones and leave the beneficial squirrels?

Doctor MERRIAM. It kills all, or practically all, of the particular species it is fatal to.

The CHAIRMAN. Then outside of that species you get an animal that is innocuous, I suppose?

Doctor MERRIAM. We find in the area that I was speaking of—eastern Oregon and Washington—two species. One we can kill by this bacillus, the other we can not.

The CHAIRMAN. You speak about the farmer that lives outside of the area having information. Of what particular value to him is that kind of information? If he lives outside of the area, he is outside of the area. The squirrels do not go there; they do not bother him.

Doctor MERRIAM. But there are other ground squirrels that may injure him in various ways.

The CHAIRMAN. Oh, this indicates the location of a particular kind of ground squirrel?

Doctor MERRIAM. Yes. On this map [indicating] each color represents a particular species of injurious ground squirrel; and in many instances, as you see, the ranges of two or three species overlap, so that in some regions the farmer has to contend with as many as three widely different species.

The CHAIRMAN. Now, of course I am thoroughly unfamiliar with this whole subject; but I do not quite see how the delimitation of the area that is occupied by a certain animal tends to facilitate the destruction of the animal by either these parasites or these animals that you have that get into contact with them. The question in my mind is if a farmer, no matter where he is, is affected by a certain rodent, a squirrel or otherwise, and you have a specific for that rodent,

(Witness: Merriam.)

what difference does it make to him whether that animal is found over a 100-acre plot or a 5,000-acre plot, so long as he gets his specific and takes care of it as far as he is concerned? In other words, of what use is it, as far as that feature of the work is concerned, to make these expensive surveys? What do the farmers care whether 10,000 or 500 square miles are inhabited by a certain animal, so long as the proper means have been taken to keep their farms clear of it?

Doctor MERRIAM. The farmers as a rule do not know the names of the animals that are injuring their crops. They do not know what the species are. They do not discriminate one from another. By means of our maps they can quickly see which species occur in their region and select the remedies best adapted to them.

The CHAIRMAN. No; but you could give them all of that information without making these expensive surveys, could you not?

Doctor MERRIAM. The surveys can hardly be called expensive surveys. They are not like topographic or mineral surveys. They are made at small cost, and once made serve not only for one animal and one crop, but for all the animals and all the crops of the region. When one of our men goes through the country he secures the information necessary to enable us to map pretty much everything in the region.

The CHAIRMAN. You say they are exceedingly cheap. What are we to understand by that? That that eliminates the element of accuracy, and they are more or less conjectural in their boundaries?

Doctor MERRIAM. No; but that we do not have to stop to make surveys with instruments like topographic surveys, such as the Geological Survey, for example, makes. We use the best existing base maps, and on these, and in our field notes, indicate with precision the boundaries of the various areas.

The CHAIRMAN. Well, a topographic survey is one thing, and a biologic survey, of course, is another.

Doctor MERRIAM. Yes; we simply show, by traversing the country in different directions, where the different species of animals and plants occur in a state of nature.

The CHAIRMAN. Are your surveys the results of measurements at all?

Doctor MERRIAM. No measurements at all are made. We simply note that so many miles from such and such a place such a species begins. Where one species begins it is the rule for several to begin. We generally find from half a dozen to twenty distinctive plants and animals when we enter a new area or belt.

The CHAIRMAN. That is, you have a common point of departure?

Doctor MERRIAM. Yes; on passing from one belt to another many of the species change. We may find half a dozen new birds, four or five new mammals, perhaps some lizards, and if in a timbered country some distinctive trees. In other words we have an association of species different from those we had before. We recognize the difference as soon as we strike the new area, and try to find out its boundaries. We want this information for two reasons—we need it in our zone work in order to show the farmer what zone he is in, and what crops are adapted to it; and we need it also in combating the injurious and destructive species of animals, to show what particular species occur in each area. For even in the case of the ground squirrels, as already stated, one remedy may be good

for one kind and another for another. The farmer is not likely to know which his species are until we tell him.

The CHAIRMAN. This is an illustration of the familiar saying that "what is one man's meat is another's poison?"

Doctor MERRIAM. That is it exactly.

There is still another important service to which our maps are put; I refer to their use as aids to State game legislation. By showing where the various animals do and do not occur they help legislators avoid the common error of providing laws for animals not inhabiting their State at all.

The CHAIRMAN. Unless you want to go farther on that line, what relation do these surveys that you make have to the flora—which includes everything that grows on the surface of the ground, as I understand it?

Doctor MERRIAM. We study the distribution of the woody and perennial plants but take no note of the annual plants, because the annual plants fluctuate in their distribution from year to year, according to the temperature of that particular year. The average climate for a period of years governs the distribution of trees and shrubs and the perennial plants. The Biological Survey is now furnishing the Forest Service an immense mass of matter on the geographic distribution of the forest trees of the West—in the forest reserves and over the country generally—data that I and my assistants have accumulated during the last twenty years of field work in nearly all parts of the West. This will save the Forest Service the expense of collecting the information. Our men always note the distribution of forest trees as well as that of the mammals and birds and other things. We keep a record of the distribution of all the trees and all the shrubs and all the mammals and birds and reptiles as we go along.

The CHAIRMAN. How long has there been a Bureau of Forestry?

Doctor MERRIAM. I do not remember when it was elevated to bureau rank—

Mr. PAGE. About four years.

The CHAIRMAN. Was it a division before that time?

Mr. PAGE. It was a division before that time.

The CHAIRMAN. Then it has been going on for a long while.

Doctor MERRIAM. As a division, it has been going on for a long while; but since Mr. Pinchot took charge of it it has grown immensely and become of enormous importance.

The CHAIRMAN. In connection with the fauna, then, you furnish the Forestry Bureau with all the data they need to use as a foundation for their investigations? Am I right about that?

Doctor MERRIAM. No; not all the data; but we furnish them with thousands of records of the distribution of trees for them to utilize in their work.

The CHAIRMAN. Do they go over the same territory for the purpose of elaborating the information?

Doctor MERRIAM. Not so far as I am aware; we save them that cost.

The CHAIRMAN. Then, if they do not have to go over that same territory, what is the reason you do not furnish them with the ultimate information?

(Witness: Merriam.)

Doctor MERRIAM. We furnish them all the information we have, but there are some areas we have not yet worked. We have not worked all parts of the United States yet.

The CHAIRMAN. Certainly.

Doctor MERRIAM. But, as we go, we collect all the information we can.

The CHAIRMAN. So that where you go the results you accomplish are the final results?

Doctor MERRIAM. Yes.

The CHAIRMAN. So far as the Forestry Bureau is concerned?

Doctor MERRIAM. So far as that phase of their work is concerned; but, of course, they are studying forestry problems to which we do not pay any attention at all.

The CHAIRMAN. Certainly.

Doctor MERRIAM. We have nothing to do with forestry proper, but we collect the distribution data.

I thought you might be interested in our progress maps, and have here a map of the State of Colorado which shows the result of two seasons' work of an assistant who has mapped the northwestern quadrant of the State.

The CHAIRMAN. What does that map indicate?

Doctor MERRIAM. It indicates the life-zones of Colorado so far as we have gone. Besides the map, we have lists of the birds and mammals and trees and shrubs of each of the areas, with definite localities. The map is the first we have ever had showing the natural life areas of that part of Colorado, and we expect to continue the work over the whole of the State. We have finished and published such a map of Texas and have a map of New Mexico which is nearly, perhaps three-fourths, finished—a field map corresponding to that of Colorado, but with the work more nearly completed. Then we have a general map which shows the major part of our results for the western half of the United States so far as the work has gone.

The CHAIRMAN. If these various investigations, Doctor Merriam, do not result in the development or settling up of these sections and the introduction of new blood there, how does the agriculturist "cash in" the results of the work your Bureau does?

Doctor MERRIAM. If he can find out, by consulting our maps and reports, what he can raise on his farm to commercial advantage, instead of spending five or ten years of his life and thousands of dollars of his money in finding out by trying to grow crops that will not thrive there, he has saved that much money and that much time. This is one of the things we are attempting to do for the western farmer. Work on food habits of birds and mammals and methods for the destruction of farm pests saves annually to the public about \$750,000.

The CHAIRMAN. In your experience, does the western farmer avail himself to any great extent of that information for the purpose of accomplishing the result you have just indicated?

Doctor MERRIAM. He certainly does and is doing so to a greater extent every year. Some of the agricultural experiment stations have republished our maps and are disseminating them widely. The California people are alive to our work and appreciate its bearing on their horticultural interests. In its topography, in its animal

life, and in its crop adaptations California is the most complicated and diversified State in the country. Almost every valley in the State has peculiar crop adaptations. Where grapes that are worth \$300 an acre can be grown in some valleys and grapes worth only \$60 an acre in others, our work has a cash value that may be easily appreciated.

Then, another branch of the service, by its work on the food habits of birds and mammals and its methods for the destruction of farm pests, saves enormous losses every year, and so is worth to the farmers of the country many times the total cost of the Biological Survey since the beginning.

The CHAIRMAN. That is by furnishing an antidote for the bane?—

Doctor MERRIAM. Yes, and in the one department of economic ornithology and mammalogy. By cooperation with the Forest Service we have just furnished them a wolf bulletin, telling how to prevent the increase of wolves in the West. Wolves are alleged by the stock owners to destroy from four to five million dollars' worth of stock a year on the western cattle ranges. We have recently put it in their power to reduce that loss to a million dollars, or below a million dollars, if they are at all active. They have been spending vast sums of money for years in trying to solve the wolf problem without any success at all.

The CHAIRMAN. What do you give them?

Doctor MERRIAM. We have discovered that it is perfectly practicable and easy to locate all the breeding dens of the wolves in a given area. In a few weeks, in early spring, two men can locate every wolf den in an area of 4,000 square miles and destroy every young wolf and a certain percentage of the old wolves. In that way the annual increase can be prevented and at the same time some of the old ones killed. The time of year when the young can be so easily destroyed happens to be the very time when the cattle rangers have least to do.

The CHAIRMAN. How do you kill them—shoot them?

Doctor MERRIAM. Only to a small extent; we destroy the young in the dens, shoot the old ones, if we have a chance, and trap them by using certain scents that are irresistible to them. We have done a great deal of experimenting with wolf scents. We have made the wolves in the Zoo here crazy over them, so that they will roll and roll on a little patch of ground where we have dropped a little of a particular scent. This information is of immense practical value. There are professional wolf trappers and hunters on all of the big stock ranges in the West who make their living in this business, and who, it has been said, are not anxious to kill the goose that lays the golden egg, and therefore have not exerted themselves to get at the real bottom of the matter.

The CHAIRMAN. They wanted to keep a supply on hand so as to keep up the industry, as you understand?

Doctor MERRIAM. Yes; that seems to be the fact. But we have put the stockmen all over the country in possession of the real facts. Mr. Pinchot, chief of the Forest Service, has recently sent out to the stock ranges of the West about 10,000 copies of a publication on this subject, prepared at his request by the Biological Survey.

The CHAIRMAN. Giving the definite location of these wolves?

(Witness: Merriam.)

Doctor MERRIAM. Yes; giving a map of the wolf areas of the United States, and showing how wolves can be combated; how the young can be destroyed in the dens and how a certain percentage of the adults also can be destroyed. Before that many of the ranges kept large packs of dogs; fast dogs—greyhounds—to run down the wolves, and bulldogs to run in and tackle the wolves. They found, in running wolves, that the greyhounds would catch up with a wolf and circle around him, but they dared not go in and tackle him, so eventually the wolf got away. They found that by adding a little bulldog to the pack the wolf was generally killed. The bulldog could not keep up with the hounds—he might be several miles behind the pack—but he would keep right on and on, and by and by would come up with the others. The instant he came to the circle where the wolf was centered he would break right through, without stopping a second, and seize the wolf by the part nearest to him. It might be the end of his nose or the end of his tail—the part made little difference—but the moment the bulldog seized the wolf the wolf would turn and seize the dog, and then all the other dogs would turn in and kill the wolf, which they did not dare to do before. After a bulldog had served a few times he was generally too much chewed up to be of further use, and had to be replaced by another. This raised the price of bulldogs.

The CHAIRMAN. It ought not to have required a very high order of intelligence to ascertain the kind of dog that would tackle a wolf.

Doctor MERRIAM. But the bulldog alone is of no account, because he can not run fast enough to catch the wolf. The other dogs—the fast hounds—must catch up with him and circle him and keep him in a definite place until the bulldog gets there to tackle him. As soon as the bulldog grabs him, and he grabs the bulldog, the other dogs kill the wolf. It is a curious thing, but it is very expensive. Some of the stockmen keep kennels of 70 or 80 dogs without getting results that are in any way commensurate to the expense.

The CHAIRMAN. With the exception of this demonstration of chasing the wolves into these circles by greyhounds, all of the other methods adopted for the extinction of wolves are simply the application of really common-sense ideas?

Doctor MERRIAM. But up to the present time the various methods have failed in results—they have failed to exterminate or even lessen the wolves. In the early days, when buffaloes were numerous on the plains, wolves were immensely abundant. After the buffalo was practically exterminated, the wolves gradually starved out until their numbers were reduced to a small remnant. Then, when the cattle industry grew and vast herds of cattle came to occupy the old buffalo ranges, the wolves began to increase and kept on increasing until now in eastern Colorado and in Wyoming there are probably ten times as many wolves as there were fifteen or twenty years ago. The same is true throughout most parts of the West. The wolves have increased with the cattle industry until they have become a tremendous menace to the cattle industry. The Forest Service was confronted with a serious question by reason of the fact that the cattlemen alleged that the wolves used the forest reserves as breeding grounds and nurseries in which to multiply and from which to spread out and destroy the cattle on the ranges. When, at the request of the Forest Service, we

(Witness: Merriam.)

began to study this question in the field, we found that the wolves lived mainly below the forest reserves, at lower altitudes, and that their dens were generally out on the Plains, in the bluffs of the mesas, and in the edges of the Bad Lands, below the forest reserves.

The CHAIRMAN. You have not yet found any useful features in the wolf, I suppose?

Doctor MERRIAM. None at all.

The CHAIRMAN. He is a sort of Ishmael; every man's hand is raised against him.

Doctor MERRIAM. We have found that at comparatively small expense the coyote can be fenced out of areas where it has been doing great damage to the sheep industry. The ordinary plains coyotes will not jump a fence 4 feet high. While they are able to jump a much higher one, they do not do it. The case is somewhat parallel to that of the jack rabbits in California. A fence 18 or 20 inches high will often keep out jack rabbits that can easily jump over a man's head. A little wire fence 18 inches high around a vineyard will usually keep out the jack rabbits. Why we do not know, but they rarely jump such a fence.

The CHAIRMAN. How near together do you have to have the strands?

Doctor MERRIAM. A wire mesh is used, with meshes just small enough to keep the rabbits from crawling through.

The CHAIRMAN. And that is the same in the case of the coyote—a 5-inch mesh, for example?

Doctor MERRIAM. Yes; for coyotes we use a 5-inch mesh. There are different species of coyotes, some small and some very large. Some of the large Pacific coast coyotes will jump a high fence. The annual benefit of the work of the Bureau of Biology on wolves and coyotes is estimated at about \$1,500,000.

The CHAIRMAN. Now, let us see; we have gone over all three of your branches, have we not?

Doctor MERRIAM. Except the matter of game preservation.

The CHAIRMAN. No; you have not said anything about that.

Doctor MERRIAM. The Biological Survey has administrative charge of interstate traffic in game, under the Lacey Act, and of the importation of animals and birds from foreign countries. This branch of the work is under the immediate charge of Dr. T. S. Palmer. It has administrative charge of the Government game reserves, the island reserves, of which there are seven or eight—some on the coast and some on the interior lakes. Under the Lacey Act it has charge of interstate shipment of game, and under the existing laws has charge of the enforcement of the Alaska game laws. This branch of the service issues permits for the importation into this country of exotic birds and animals.

We have made a great effort to keep out such dangerous species as the mongoose and the fruit-eating bats. We do not want a repetition of what happened in the case of the English sparrow and the common rats and mice. If the mongoose were introduced into this country it would unquestionably swarm over the southern States from about the mouth of Chesapeake Bay on the east to California and up through central California, and would probably do millions of dollars' worth of damage, rendering much of the country almost worthless

(Witness: Merriam.)

so far as agriculture goes. This would be done by destroying the ground and bush breeding birds and the frogs and toads and lizards and snakes—the insect-eating reptiles—resulting in such an increase of insect pests as to convert much fertile country into a barren waste. It has been introduced into Jamaica and into the Hawaiian Islands with disastrous results. Its introduction into the United States would be one of the greatest calamities that could happen to us. We have had a hard fight against the mongoose for a good many years, both in the East and in the West. A few years ago some rich men in the East attempted to introduce some of them to turn loose in the Carolinas, but we were able to head them off. Several times they have been brought to California for the purpose of introducing them. A little over a year ago one got through the custom-house at San Francisco and was taken in a cage to a hotel. One of our men visited the people who had it and took it away, and it died.

The CHAIRMAN. Do you have any law prohibiting the introduction of the mongoose?

Doctor MERRIAM. Oh, yes; we have a good law prohibiting the introduction of the mongoose and other pestiferous animals that are liable to do great damage if they once obtain a footing in this country. Enforcing laws prohibiting importation of certain destructive animals saves to the public annually about \$750,000.

The CHAIRMAN. Does the game-protection law apply to anything outside of the Government forest reserves and game preserves?

Doctor MERRIAM. It applies to interstate commerce in game everywhere. We also do a great deal in the way of assisting the States in framing uniform game laws throughout the United States. Every winter, whenever game legislation is pending, many States call on our office to send a man versed in game-law matters to tell what game laws have proved best in the different States and to help in framing their laws. Our assistant, Doctor Palmer, has already appeared before three State legislatures during the present winter. In some cases a joint session of both houses of the legislature is held on this matter and Doctor Palmer is invited to address them. We recommend an outline model game law, with modifications to suit the conditions of each area. The States ask us for this information, and it helps in getting through uniform legislation. We publish and distribute bulletins and posters on game matters, giving the close seasons in all the States and Territories for all kinds of game and disseminating a great deal of information on kindred topics.

The CHAIRMAN. Do you do any protection of game in Maine, for instance?

Doctor MERRIAM. No; that comes under the State laws.

The CHAIRMAN. That is, there are no Government reservations there?

Doctor MERRIAM. There are no Government bird reservations in Maine, but in connection with our work the Audubon Society has secured certain islands on the coast of Maine on which it has prevented the destruction of gulls and other sea birds, and we have cooperated with them.

The CHAIRMAN. What do you think they accomplish by preventing the destruction of the gulls?

Doctor MERRIAM. They accomplish the saving of one of the most interesting and attractive forms of bird life on our coasts—one that everybody likes to see. Such colonies of handsome birds are an asset to the country. The gulls do no harm, but do a great deal of good in acting as scavengers about the harbors.

The CHAIRMAN. The first part of that is an æsthetic proposition; the rest is practical.

Doctor MERRIAM. Yes. We believe that any attractive bird or animal is an asset of value to the country in which it occurs and that if it does no damage it ought to be preserved for the benefit of the people. It is an object of interest.

The CHAIRMAN. Who writes up these bulletins in your Department?

Doctor MERRIAM. The different assistants.

The CHAIRMAN. What is done with them after they are written up by the assistant—anything?

Doctor MERRIAM. They are published and distributed.

The CHAIRMAN. I mean, is the process that the assistant writes up a bulletin on a subject that he is familiar with and that he has investigated?

Doctor MERRIAM. Yes; each man writes on his own specialty.

The CHAIRMAN. Do you have that bulletin edited in your Department before it goes to the Bureau of Publications?

Doctor MERRIAM. Yes; and that takes a lot of our lifeblood. That is one of the most unfortunate conditions that we have been up against for all these years. We have never had money enough to employ a special editor, and therefore the head men of the office have had to do the editing. Many bulletins are presented for publication, some of them very voluminous; and it takes the best time and energy of the head men to keep reading these things and seeing that they are fitted for the press, because the Division of Publications has too much to do in getting publications through the press to do the necessary editing for the individual bureaus and offices. It has not force enough to do it and does not undertake to do it.

The CHAIRMAN. Are your publications subsequently edited by anybody else?

Doctor MERRIAM. No; unless the editorial office (Division of Publications), in seeing them through the press, spots something that it thinks should be changed.

The CHAIRMAN. Then there are no editors who supervise the work after it leaves your bureau by reading every article through?

Doctor MERRIAM. Yes; the editorial office does that. That is done under Mr. Hill and Mr. Arnold. Somebody there reads every bulletin before it goes through. Mr. Arnold is Mr. Hill's assistant in the editorial division—the Division of Publications.

The CHAIRMAN. Then the method is for the gentleman who prepares the article, and who has the scientific knowledge, to either indicate or write his article, and somebody else in your Department examines the article?

Doctor MERRIAM. And reads it very carefully.

The CHAIRMAN. And reads it very carefully, for the purpose of revising the substance or putting in shape the form?

Doctor MERRIAM. Both; to see that the facts are not exaggerated,

(Witness: Merriam.)

that the subject is properly stated, and that it is presented in fairly good English.

The CHAIRMAN. And then, after that, it is again read by an editor in the Division of Publications?

Doctor MERRIAM. Yes; by one of the editors; but the editor does not undertake to take what we call a crude original manuscript and prepare it for the press. They do not do that for us. They have not the force for it. We have to do that ourselves.

The CHAIRMAN. Why can you not have one man to do the whole thing? Why is not that perfectly feasible?

Doctor MERRIAM. You mean one man in our office?

The CHAIRMAN. Yes; either in your office or in the other.

Doctor MERRIAM. It would be perfectly feasible for one man to read and edit all of the publications in our Bureau, but we have never had any such man, or any means to employ him, and the editorial division has not the force to lend us a man to do it. That is the trouble. Of course, such editing requires special knowledge and it takes time. As a general rule, our subjects are so related that there are two or three, or even more, men whose work bears on different parts of a bulletin. When a bulletin is offered to us for publication, it is presented to the chief of the Bureau, or the acting chief, who takes it and generally has it read by two or three men in the office to see that it is scientifically correct; that it does not exaggerate, and that it does not say things that we do not know to be so. We have these different men go over it from their different points of view. Then we take it and fit it editorially for publication. That is the history of most of our publications, as to the detail we go through.

The CHAIRMAN. In order to get accuracy, is it necessary to go through all that detail?

Doctor MERRIAM. We think it is in most cases. Some men are peculiarly able to do a particular kind of work—we have several of that kind—work nobody else in the world can do. They have a special line of research in which they are preeminent; but they have not the faculty of putting the results in good form for publication, and they may not know enough about certain correlated subjects that come in incidentally to make perfectly accurate statements. So we have their bulletins read over by several of us to check them up and see that they are just as accurate as possible.

The CHAIRMAN. Do you compare the manuscript with the data from which the original man worked?

Doctor MERRIAM. Not often, but sometimes; it depends.

The CHAIRMAN. It depends on whether you are familiar with the subject, I suppose?

Doctor MERRIAM. Yes; which we generally are.

The CHAIRMAN. Your idea is, then, that you could not have a man that had the capacity or ability to have the knowledge on the subject and the requisite literary ability to make one editing sufficient?

Doctor MERRIAM. No; we could not have such a man, but we could have an editor; we could have a man who is a good English writer, a trained editor, who could take our manuscripts when they have been checked up, and put them in shape for publication, thus saving the time of my head men—such important men as Doctor Palmer, and

(Witness: Merriam.)

Mr. Henshaw, and Mr. Bailey, and myself. That would save us the time that we now have to put on this kind of mechanical drudgery.

The CHAIRMAN. Most of these other bureaus have them?

Doctor MERRIAM. Yes; I think about all of the bureaus have editors. We have hoped for one for a long time, but so far without success.

The CHAIRMAN. In the Government reservations, game or otherwise, is there any legislation protecting the game, regulating the closed time, and imposing penalties for violation of the law, and all that sort of thing?

Doctor MERRIAM. We have now no Government game reservations that could be strictly called such, except the islands I have mentioned—the bird islands in Florida and Louisiana, and up in North Dakota. There are seven of them, and they are under our jurisdiction, but we have not money enough to employ wardens. The Audubon Society, with which we have cooperated, helps us, so that we pay each warden \$1 a month, and they pay him enough salary to get him to stay there and do his work. He simply has a commission from us as a Government officer at \$1 a month, and the Audubon Society puts up the money to keep him there. These wardens have proved efficient officers, and have prevented the destruction of the breeding colonies in their charge.

The CHAIRMAN. Inasmuch as we have no forest reserves or game preserves in which the legislation of the United States operates and in which we undertake to protect game, the duties of this bureau for the protection of game, as I understand it, are confined first to these islands, where you have territory over which the United States has jurisdiction, and where you have laws prohibiting the capture of birds and animals, or whatever it may be, within certain limits?

Doctor MERRIAM. And in Alaska.

The CHAIRMAN. In Alaska; yes. Now, then, in addition to that, the only other work you do in the line of protecting game is by conferring and consulting with these various people who are operating under the game laws of the various States, and then doing what you can to unify State legislation on the subject of the preservation of game.

Doctor MERRIAM. Yes; and by rendering service in the case of violations of the Lacey Act, which are occurring all the time.

The CHAIRMAN. Oh, yes.

Doctor MERRIAM. Sometimes thirty or forty such cases are up before the Department of Justice, and we cooperate with them in various ways, in identifying the specimens that have been illegally obtained and shipped, and so on—furnishing expert information. We are also required by law to prevent the introduction of noxious animals that are brought from foreign lands. We have three inspectors at New York and two at each of the other principal ports of entry from New York to San Francisco. Whenever a ship comes in the inspectors must be ready to go and inspect the birds and animals that it brings. Sometimes as many as 15,000 birds are introduced on one ship. They can not be landed without a permit from our office. We often grant such permits on telegraphic request from the shippers or the consignees, and have our inspectors examine the consignments to see that they are as represented.

The CHAIRMAN. What kind of birds are those that are imported?

(Witnesses: Merriam, Zappone.)

Doctor MERRIAM. Various kinds of birds from all over the world. The great majority are canaries and other harmless song-birds; but amongst them are all kinds of birds, including sometimes noxious birds—birds that are very injurious to agriculture that we are trying to keep out of this country—and thus far we have succeeded in keeping them out. Before this law was passed a lot of birds were introduced at Portland, Oreg., that probably would have done millions of dollars of damage to the grain and fruit crops of the west coast had it not been for a fortunate circumstance. The birds were brought from the north of Europe, where they are migratory, and introduced into Oregon, where the winters are cold enough so that when the birds felt winter coming on the migratory instinct took them south, and they never came back. They were lost. That was our salvation. But we can not count on anything of that kind; our only safety is to keep noxious species out of the country.

We have never paid our inspectors anything until recently. The biological survey has never had any money for that purpose. We have always insisted that the men making the importations should pay the cost of examination, which is \$5. But the Secretary of the Treasury ruled against us last year, and said that this could not be done. Since then we have had to pay the inspectors or the service would have stopped. We had no money for that purpose, but were forced to pay it out of our general fund. We have not yet had any additional appropriation, but have been paying the inspectors ever since. We have had to do it.

The CHAIRMAN. How many men have you got through the country watching the importation of birds?

Doctor MERRIAM. Eleven. We have three in some of the large cities, like New York, so that one man can always be reached by telephone. When a ship comes in with a large number of birds on board—thousands of birds, perhaps—the importer wants to get them ashore promptly. A spell of damp, chilly weather might result in the loss of thousands of dollars in a few hours. So we must have somebody ready to come at telephone call. The men we appoint arrange it among themselves, so that one man is always on hand at a convenient place and will go immediately, without any delay whatever. All he gets for that inspection, which may take him all day, is \$5. We pay him that \$5 now. We have had to since that ruling of the Treasury.

The CHAIRMAN. Do you think of anything more, Mr. Samuel?

Mr. SAMUEL. No; I do not.

The CHAIRMAN. Do you think of anything further you would like to state, Doctor Merriam?

Doctor MERRIAM. No; I do not think of anything.

The CHAIRMAN. I think that covers the whole ground, unless you wish to ask something, Mr. Zappone.

Mr. ZAPPONE. Nothing more.

BUREAU OF STATISTICS.

JANUARY 17, 1907.

(Part of testimony, on above date, before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF VICTOR H. OLMSTED, ESQ., CHIEF OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

(The witness was duly sworn by the Chairman.)

The CHAIRMAN. What position do you occupy, Mr. Olmsted?

Mr. OLMSTED. I am the chief of the Bureau of Statistics of the Department of Agriculture.

The CHAIRMAN. And how long have you occupied that position?

Mr. OLMSTED. If I remember correctly, I was appointed on June 16, 1906.

The CHAIRMAN. And prior to that time what department had you been in the employ of?

Mr. OLMSTED. Immediately prior to my appointment as chief of the Bureau?

The CHAIRMAN. Yes.

Mr. OLMSTED. I was still in the same Bureau; I held the office of Associate Statistician prior to that appointment.

The CHAIRMAN. Yes; you are down here as Associate Statistician at \$3,000.

Mr. OLMSTED. Yes.

The CHAIRMAN. And your salary is now \$3,500 as the chief?

Mr. OLMSTED. Yes. The other position, I might say, was not a statutory position. It was a position created by the necessities of the office shortly prior to my coming back to the office from the Philippine Islands.

The CHAIRMAN. What was that?

Mr. OLMSTED. I do not know when the position of Associate Statistician was created. It was a temporary position, and was done away with when I was appointed chief of the Bureau. I did away with it entirely; I abolished it.

The CHAIRMAN. That was done, you say, when you came back to the Bureau?

Mr. OLMSTED. Yes, sir. I will explain what I mean.

The CHAIRMAN. Yes.

Mr. OLMSTED. In 1902 I was employed by the Bureau of Statistics as a special field investigator, having general charge of investigations and examinations in the field. While I was in that position, the Secretary of War, Mr. Root, desired my services—

The CHAIRMAN. What was your salary at that time as an investigator in the field?

Mr. OLMSTED. My salary at that time was \$7 per diem.

The CHAIRMAN. Yes. Now go on.

Mr. OLMSTED. While I occupied that position the Secretary of War, Mr. Root, desired to employ me to supervise the taking of the Philippine census; and an arrangement was made between the Secretary of War and Secretary Wilson whereby I was given leave, I believe, without pay. At all events, I was allowed to be employed by the Secretary of War for the taking of the Philippine census for as long a time as might be necessary, with the understanding that when that was finished I should be returned to the Department of Agriculture.

The CHAIRMAN. What was that under—the Bureau of Insular Affairs?

Mr. OLMSTED. That was under the Philippine government—not the Bureau of Insular Affairs. I was employed by the Philippine Commission. They employed me through the Bureau of Insular Affairs here in Washington, but I was employed directly by the Philippine Commission.

The CHAIRMAN. The Secretary of State operates on the Philippine Commission through the Bureau of Insular Affairs.

Mr. ZAPPONE. Our records show that Mr. Olmsted was on leave without pay from October 2, 1902, until he was restored to the rolls on April 1, 1904.

The CHAIRMAN. Yes. The Chief of the Bureau of Insular Affairs at that time was Mr. Edwards?

Mr. OLMSTED. Mr. Edwards was Chief of the Bureau of Insular Affairs; yes, sir.

The CHAIRMAN. What salary did you receive then?

Mr. OLMSTED. In the Philippine Islands?

The CHAIRMAN. Yes.

Mr. OLMSTED. It was \$720 a month and expenses. I was employed at that rate by the month, not by the year.

The CHAIRMAN. That is nearly \$9,000?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. And expenses?

Mr. OLMSTED. And traveling expenses; not subsistence.

The CHAIRMAN. How long did that employment continue?

Mr. OLMSTED. That employment continued at that rate for nearly a year, while I was absent from the United States only. My contract with them was that I should receive that salary while absent from the United States. When I returned to the United States, under a special contract with the Philippine government before I left the Philippine Islands, my salary was reduced to \$3,000 a year.

The CHAIRMAN. To \$3,000?

Mr. OLMSTED. To \$3,000 a year.

The CHAIRMAN. That is, on your return to the United States?

Mr. OLMSTED. Yes; on my return to the United States, and taking up the work here in the United States of compiling and arranging for publication the material collected in the Philippines.

The CHAIRMAN. When did you return?

Mr. OLMSTED. I returned in September or October, 1904, I think it was.

The CHAIRMAN. And how long did you continue to act under the Philippine government, or the Bureau of Insular Affairs?

Mr. OLMSTED. I continued to act with them here in Washington up to the latter part of January, 1905.

The CHAIRMAN. At a salary of \$3,000 a year?

Mr. OLMSTED. At a salary of \$3,000 a year from the Philippine government; yes, sir.

The CHAIRMAN. Up to the latter part of January, 1905?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. When did you go into the Department of Agriculture?

Mr. OLMSTED. I went into the Department of Agriculture, if my recollection serves me right, on April 1, 1904.

The CHAIRMAN. In what capacity?

Mr. OLMSTED. As chief of the Division of Domestic Crop Reports.

The CHAIRMAN. And at what salary?

Mr. OLMSTED. At \$2,800 a year.

The CHAIRMAN. So that from April, 1904, until the last of January, 1905, you were drawing two salaries?

Mr. OLMSTED. I drew two salaries; not from the United States Government, however. I drew one from the United States Government and one from the Philippine government, with the full understanding of both parties, both departments, that I should do that, and at their solicitation.

The CHAIRMAN. That is what I wanted to inquire about. Were you rendering service to both Bureaus?

Mr. OLMSTED. I was.

The CHAIRMAN. If I understand it correctly, from the first of April, 1904—

Mr. OLMSTED. Some time in April; I am not sure about the date. (April 1, 1904.)

The CHAIRMAN. Well, some time in April—that is near enough. Of course we do not care anything about the exact dates. From some time in April, 1904, until the last of January, 1905, you were drawing \$3,000 a year from the Philippine government, or the Insular Bureau, whatever it may be, and at the same time \$2,800 a year from the Department of Agriculture?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. Under the Department of Agriculture?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. So that aggregated, during that period, \$5,800?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. What was this position in the Department of Agriculture to which you were appointed at the rate of \$2,800?

Mr. OLMSTED. Chief of the Division of Domestic Crop Reports of the Bureau of Statistics.

The CHAIRMAN. Is that the division under which the cotton statistics are collected?

Mr. OLMSTED. Yes; and all the other crops—wheat, rye, oats, barley, and everything.

The CHAIRMAN. Is that the division that all the hubbub was created about later on?

Mr. OLMSTED. It was partly the work of that division that was handled by the Statistician.

The CHAIRMAN. Oh, it was?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. Who occupied this place of chief of the division before you occupied it; or was there any such position?

Mr. OLMSTED. I do not know that it had been designated as such. There was a man named Harrison doing the work.

The CHAIRMAN. What salary was he getting?

Mr. OLMSTED. I do not know. I do not know what salary he got, I am sure.

The CHAIRMAN. Was there any such position as that before you occupied it?

Mr. OLMSTED. I do not believe there was, officially.

The CHAIRMAN. Then the position, so far as the position is concerned, was created at that time?

Mr. OLMSTED. Yes, sir; I think it was.

The CHAIRMAN. By whom was it created, so far as you know?

Mr. OLMSTED. It was created by the Secretary of Agriculture and the Chief of the Bureau—by the Secretary of Agriculture at the solicitation of the Chief of the Bureau, I suppose.

The CHAIRMAN. Who was the Chief of the Bureau?

Mr. OLMSTED. A man named Hyde, Mr. John Hyde.

The CHAIRMAN. Who is this Mr. Hyde? Is he this man that got into trouble?

Mr. OLMSTED. He is one of them.

The CHAIRMAN. I know nothing about that except what I have seen and heard. You say that Mr. John Hyde was at that time Chief of the Bureau?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. And so far as your understanding of it is concerned, this position was created at that time?

Mr. OLMSTED. I think it was. However, I will explain to you, if you will permit me.

The CHAIRMAN. Certainly.

Mr. OLMSTED. Before that time, the work that I took charge of when I was appointed to that position had been carried on under the supervision of another man.

The CHAIRMAN. By an eighteen-hundred-dollar man?

Mr. OLMSTED. I do not know what his salary was. I think it was \$1,800 or \$2,000, I am not sure.

The CHAIRMAN. Perhaps Mr. Zappone can tell me. Do you remember about that?

Mr. ZAPPONE. You refer to Mr. Harrison?

Mr. OLMSTED. Mr. Harrison; yes.

Mr. ZAPPONE. He received \$1,800.

The CHAIRMAN. Then that work that you did was done by an eighteen-hundred-dollar man before that time?

Mr. OLMSTED. It purported to be done by him.

The CHAIRMAN. Well, he was "making a shy at it," at any rate?

(Witness: Olmsted.)

Mr. OLMSTED. Yes; well, not fully, not fully, because he, as I am informed, only had charge of a small branch of that work.

The CHAIRMAN. What did he do after you took that appointment?

Mr. OLMSTED. He was employed there for a short time as a clerk, when his health failed and he quit the office.

The CHAIRMAN. Did he continue right along in the same work he had been doing?

Mr. OLMSTED. Oh, no.

The CHAIRMAN. Did you do the work that he had been doing?

Mr. OLMSTED. Yes; and a good deal more than he had been doing.

The CHAIRMAN. And you still did all your work under the Insular Bureau, did you?

Mr. OLMSTED. My work under the Insular Bureau by that time had become so small that it took very little of my time. I only worked nights.

The CHAIRMAN. Am I to understand that it was substantially perfunctory, and that you were drawing the salary without rendering any services for it?

Mr. OLMSTED. No, sir; it was not perfunctory, but——

The CHAIRMAN. Well, you say it had become very small.

Mr. OLMSTED. It had become of a character that did not require very much time; but I had to examine—for instance, I will tell you: The material we collected in the Philippine Islands was brought back here and compiled and tabulated in the Census Bureau.

The CHAIRMAN. Yes.

Mr. OLMSTED. It was my duty to supervise that tabulation, and, when it was done, analyze it and prepare the text for publication, and to supervise the editorial work and do semieditorial work. Now, at the time, Mr. Hyde had been after me several times to come back to the Department, stating that work was in bad condition; the tabulating work in the Division of Domestic Crop Reports was getting into a chaotic condition, and he was calling on me to come back. I told him for awhile that I could not possibly do it; that the work of the Philippine census was pressing, and that I could not quit it, but that as soon as I could see my way clear so that I could do this work without infringing on the work that I should do for him I would let him know. After awhile the Philippine census work dropped to the point where I did not have to stay at my desk all the time. I would take the material as it came from the tabulating divisions and go down there every evening and work until 1 or 2 o'clock in the morning, and every Sunday, and in that way I would do my work for the Philippine census bureau outside of the hours I devoted to the Department of Agriculture. Now, I could do that, and I did do it, and kept the work right up to date all the time, so that by the time the tabulations were done I had them in shape for publication.

The CHAIRMAN. When did you get back into this country from the Philippines?

Mr. OLMSTED. In September or October, 1903, I think it was.

The CHAIRMAN. From some time in September, 1903, up to April, 1904, then you were drawing \$3,000 a year?

Mr. OLMSTED. Yes; and it occupied all my time up to that time.

The CHAIRMAN. Exactly so.

Mr. OLMSTED. And practically all of my nights, too.

(Witness: Olmsted.)

The CHAIRMAN. From April, 1904, to January, 1905, you continued to do the same work you were doing under the Insular Bureau, and then did, in addition, the work under the Agricultural Department?

Mr. OLMSTED. Yes; except that the Insular Bureau work did not require all of my time, as it had prior to that time.

The CHAIRMAN. Exactly; that is what I understood you to say a few minutes ago.

Mr. OLMSTED. Yes, sir; but it was of the same character.

The CHAIRMAN. The work had decreased very much?

Mr. OLMSTED. Yes; the quantity of work had decreased, but the importance of it had not decreased. It was the finishing touches I was putting on it, you know.

The CHAIRMAN. Oh, yes; and of course you were thoroughly familiar with the matter, as far as that is concerned, and the quantity was the thing that figured.

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. How many hours a day were you required to work in order to earn those two salaries?

Mr. OLMSTED. I worked in the Bureau of Statistics from 9 o'clock in the morning until half past 4 in the evening. Then I would go home and get my dinner and rest an hour or two, and then go down to the Census Bureau and work; while I was not required to work any specified number of hours, I generally did work until midnight or 1 o'clock in the morning, and I worked all day Sundays.

The CHAIRMAN. How many clerks did you have under you in the Bureau of Insular Affairs? Was it Insular Affairs?

Mr. OLMSTED. No; it was the Bureau of the Census, Mr. North's bureau. The work was done by Mr. North's clerks, and they were under him, but I simply mapped out the work to his subordinates as to what I wanted done.

The CHAIRMAN. You were working then in conjunction with the Census Bureau?

Mr. OLMSTED. Yes.

The CHAIRMAN. That certainly is a United States Government bureau, is it not?

Mr. OLMSTED. Yes, sir. Under the law and under an arrangement with the War Department the tabular work—the clerical work of the census returns of the Philippine Islands—was to be performed by the United States Census Bureau, because they had the equipment and the machinery and the clerks employed there, and they had the manual labor. They made the tables, the footings, etc., for my use, to work up for the books.

The CHAIRMAN. The supervision of it was done by the Philippine government; that is, was the Philippine government furnishing the men to supervise the work of one of the government departments, from your understanding of it?

Mr. OLMSTED. Yes, sir; in a way. I did not exactly supervise the actual details of the work. For instance, I furnished Mr. North, or his proper subordinates, with a statement of what kind of tables I wanted made.

The CHAIRMAN. Exactly.

Mr. OLMSTED. The box heads, etc., and I showed him how I wanted them tabulated. That he would have his clerks do in accordance my directions. I did not supervise the clerks immediately.

(Witness: Olmsted.)

The CHAIRMAN. Did they reach the final results?

Mr. OLMSTED. They reached the final figure results which I wanted; yes, sir. They made the footings.

The CHAIRMAN. The figures, I take it, are the final results?

Mr. OLMSTED. Yes, sir; but those things had to be explained and analyzed and treated textually before they were published. There was a great deal of other matter that the Census Bureau did not do, in the way of textual matter that we had collected that had to be edited and rewritten and adjusted, and a good deal of compilation.

The CHAIRMAN. What was this textual matter?

Mr. OLMSTED. If I had a volume I could show you.

The CHAIRMAN. I mean just generally?

Mr. OLMSTED. It was matter on the production of rice, for instance, and on the production of tobacco in the Philippine Islands, and textual matter on the subject of express and telephone and telegraph companies.

The CHAIRMAN. Who prepared the original manuscript for that textual matter?

Mr. OLMSTED. I did, mostly.

The CHAIRMAN. Did you have stenographers?

Mr. OLMSTED. I had one stenographer and typewriter.

The CHAIRMAN. By whom was that stenographer employed, the United States Government or the Philippine government?

Mr. OLMSTED. He was appointed by the Philippine government.

The CHAIRMAN. When you received your compensation from the time you got here in September, 1903, up to January, 1905—that is, your \$3,000 per annum—upon what official were those checks drawn?

Mr. OLMSTED. They were drawn, I think, upon the treasury of the Philippine Islands. I used to get a draft from the disbursing officer here at the Insular Bureau, and I think they were drawn on the Treasury of the Philippine Islands. That is my recollection.

The CHAIRMAN. Who drew those drafts in the Insular Bureau?

Mr. OLMSTED. The disbursing officer, Mr. Jester.

The CHAIRMAN. Then the thing comes down in the end, at any rate, since you were in this country, after you were over there, to the management of the Insular Bureau? They had charge of all that business?

Mr. OLMSTED. Oh, all my financial affairs were arranged through them. As far as the compensation was concerned, I received it through the Insular Bureau; yes.

The CHAIRMAN. Who is the disbursing officer of the Insular Bureau?

Mr. OLMSTED. Mr. Jester was the disbursing officer at that time.

The CHAIRMAN. What is his name?

Mr. OLMSTED. I do not remember his full name. He is now, I understand, disbursing officer of the Canal Commission on the Isthmus of Panama.

The CHAIRMAN. Your recollection is not distinct whether those checks were drawn or whether those drafts were made upon the Treasury of the United States or upon the Philippine treasury?

Mr. OLMSTED. I know positively that they were made upon the Philippine treasury, because I was paid from the funds of the Philip-

pine government and employed by it. They were not upon the United States Treasury at all. That is very positive.

The CHAIRMAN. By the Bureau of Insular Affairs?

Mr. OLMSTED. By the disbursing officer, who was also the agent of the Philippine government in this country for the disbursement of their funds.

Mr. ZAPPONE. Mr. Chairman, those appropriations are entirely separate and distinct. The United States does not make appropriations for the Philippine service.

The CHAIRMAN. Of course I do not know anything about it. I am simply inquiring.

Mr. OLMSTED. Well, that is the fact.

Mr. ZAPPONE. Therefore it would not be in the nature of double compensation under the law, so far as an employee of the Department of Agriculture was concerned.

Mr. OLMSTED. If you will allow me to explain: At the time I was asked to come back to the Department of Agriculture to take charge of affairs there in the tabulating division I demurred, on the ground that possibly it would interfere with my work on the Philippine census tabulations and compilations. The request to come was reiterated several times, and finally my work in the Philippine bureau got to such a point that I saw I could do it by working outside of the United States Government office hours.

The CHAIRMAN. Yes. From whom did those requests come?

Mr. OLMSTED. They came from Mr. Hyde, the chief of the Bureau, direct, personally.

The CHAIRMAN. Mr. Hyde, of course, knew that you were receiving compensation in the Insular Bureau?

Mr. OLMSTED. Oh, yes; and that is what I was coming to. When I finally came to the point where I saw that I could carry on both works without the one interfering with the other, I told Mr. Hyde, the next time he came to see me, that I could do it now if it was agreeable, but that I would not abandon the Philippine work; that if he could not agree for me to take this position and still carry on my Philippine work outside of office hours, I would have to continue it, because that work must be finished. I had undertaken to finish it, and I was going to finish it. After consideration—I suppose he consulted with the secretary, though I do not know—he finally said that would be all right; that the salary that I received for the work in the Philippine Islands was not paid by the United States Government, nor from the United States Treasury. Then I went to the director of the Philippine census, General Sanger, and explained the situation to him; and he likewise, after thoroughly considering the matter, agreed to the proposition. Then, after I was appointed, the disbursing officer of the Department of Agriculture, who was then Mr. Evans, took the matter up, and I explained it to him. He said that if my explanation was all right, as he had no doubt it was, that there was nothing wrong in it; it was all right; and that he would investigate it. He afterwards did investigate it, because I saw him later, and he told me he had looked into the matter and found that there was nothing reprehensible or wrong in it at all; that my action in the matter was perfectly proper, and there was no violation at all of any law in my drawing a salary from the Philippine government.

and at the same time drawing the salary here, provided the duties of the one did not conflict with the duties of the other, or interfere with each other in any way. So that the matter was thoroughly understood all around.

The CHAIRMAN. So that so far as you were concerned, everybody from the Secretary of Agriculture down understood the situation?

Mr. OLMSTED. And the officials of the War Department, too, and the officials of the Philippine government. They all understood it, and the disbursing officer understood it. Everybody understood it.

The CHAIRMAN. And they all knew that you were receiving two salaries?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. They held that it was not within the inhibition of the law?

Mr. OLMSTED. They did.

The CHAIRMAN. Whether or not it was within the spirit of it of course would be another thing. Now, here is a regulation that the Secretary of Agriculture seems to have adopted in a letter issued June 1, 1901, which provides in part 2:

Persons holding appointments to positions in other departments, or officially connected with any other branch of the Government service, will not be employed in any capacity, even temporarily, in the Department of Agriculture.

I suppose they must have held that the work that you were doing under the direction of the Insular Bureau was not done under "any other branch of the Government?"

Mr. OLMSTED. That was exactly what was held.

The CHAIRMAN. That was precisely what was held?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. That the peculiar governmental situation in connection with the Bureau of Insular Affairs was such as eliminated that from the category of "any other branch of the Government?"

Mr. OLMSTED. Yes; that matter was gone into quite thoroughly by the disbursing official of the Department of Agriculture, Mr. Evans.

The CHAIRMAN. Who is that?

Mr. OLMSTED. Mr. Evans, Mr. Zappone's predecessor.

The CHAIRMAN. Do you know whether the attention of the auditor was ever called to the situation?

Mr. OLMSTED. I do not know; I do not think it was. Certainly, unless some one especially called it to his attention, it would not be, because the auditor of our Department does not audit the affairs of the Philippine Government.

The CHAIRMAN. He audits the affairs of the Department of Agriculture?

Mr. OLMSTED. Yes; but not of the Philippine Government. He has nothing to do with their expenditures.

Mr. ZAPPONE. Mr. Chairman, I have been told that that matter was informally discussed with the Comptroller, and he held, just as he has done in the case of the State Agricultural Experiment Stations, that as the money was not appropriated by the United States Government it was not a violation of the law in regard to double compensation, which is quoted in our record, but which I would like to read to you again.

(Witness: Zappone.)

The CHAIRMAN. What is this?

Mr. ZAPPONE. This is a law that pertains exclusively to the Department of Agriculture prohibiting double compensation. It does not pertain to other Departments at all. It pertains exclusively to our Department.

The CHAIRMAN. You can read that into the record right here.

Mr ZAPPONE (Reading):

That no part of the money herein or hereafter appropriated for the Department of Agriculture shall be paid to any person, as additional salary or compensation, receiving at the same time other compensation as an officer or employee of the Government; * * *. (Act of Mar. 3, 1885. 23 Stat. L., 356.)

The CHAIRMAN. That is substantially this regulation?

Mr. ZAPPONE. Yes; that regulation was based on this law. That is why I bring this up.

The CHAIRMAN. I will read another thing right here, so that it will go right in here, Mr. Olmsted, and then you can follow right along with your suggestion, so that anybody who wants to look this record over will get all the law that has been called to our attention. In addition to this regulation of the Department, I find in this publication the following quotation from the statute, and the construction that has been made of it by the Comptroller. The statute is as follows:

That no part of the money herein or hereafter appropriated for the Department of Agriculture shall be paid to any person as additional salary or compensation, receiving at the same time other compensation as an officer or employee of the Government (23 Stat. L., 356.)

The decision is:

The provision in the act of March 3, 1885, "that no part of the money herein or hereafter appropriated for the Department of Agriculture shall be paid to any person as additional salary or compensation, receiving at the same time other compensation as an officer or employee of the Government," does not apply to a person holding two separate, distinct, and compatible employments in that Department.


That is from the Comptroller's Decisions (6 Pub., p. 284), and I suppose ought to go in here, of course.

Mr. ZAPPONE. Mr. Chairman, may I make a remark in that connection? I made reference to a decision of the Comptroller in which he held that a person receiving compensation from one of the State agricultural experiment stations could also very properly, under this law which I have just read to you, receive compensation from the Department of Agriculture, as it was not money appropriated by Congress, but money appropriated by a purely State institution. Now the case that you are discussing with the Chief of the Bureau of Statistics is, I think, entirely analogous. The moneys are not appropriated by the United States. It is not a Government institution in any way. The law that we are discussing here has been a very hard law for the Department of Agriculture to live up to. It pertains exclusively to our Department, and we are all the time watching the accounts to see that its provisions are lived up to. About a year ago I had a case of one of our men in the field who disburses money; he employed a man connected with the Geological Survey to make a map of a certain isolated district, as he was the only man available, the only man that knew the geography and contour of that section of the country. He employed him in good faith

and paid him \$20 to prepare the map. Now, that does not look like salary at all, but it is, under a literal construction of the law, as it was for services rendered.

Mr. SAMUEL. Do you mean he paid him, or promised to pay him?

Mr. ZAPPONE. He paid him, and it had to be considered as "services" by the Division of Accounts, when it passed on this official's accounts in an administrative way. The accounts were sent to the Treasury, with the recommendation that the item be suspended or disallowed, inviting attention to this particular law. The Auditor took it up with the Comptroller, feeling that the man had not violated the law, as it was not a salary but more in the nature of compensation for services for performing a job—contract work, in other words. He referred it to the Comptroller, and the Comptroller sustained previous decisions to the effect that the man could not be paid under that law for the particular work, as it was for services performed and therefore double compensation. In that case the disallowance made the temporary disbursing agent suffer a personal loss of the amount.

The CHAIRMAN. It was very clearly compensation. 

Mr. ZAPPONE. I merely give that as an illustration to show how very hard that law is on the Department. We have endeavored once or twice to have it repealed, but have not been successful.

Mr. OLMSTED. But, Mr. Chairman, in my case there was not even an apparent violation of the law, inasmuch as I did not hold two positions under the United States Government, did not render double service to the United States Government, and did not draw two salaries from the United States Government. The situation was fully discussed and understood before I accepted the position, which was only at the earnest solicitation of the officials of the Agricultural Department. I had no thought of going back to the Agricultural Department until I should have fully completed the work for the Philippine census bureau. But it seems that my services were very much desired over there, and when my work for the Philippine census got to such a point that I could carry it on without interfering with the work required of me by the Department of Agriculture, after a full understanding and discussion of the situation by all parties concerned—the officials of the War Department, the director of the Philippine census, and the officials of the Agricultural Department—I finally went over there and took charge of that work, carrying on my work for the Philippine census bureau at night and on Sundays and whenever a holiday came in, using all my spare time and nearly killing myself incidentally, and doing my work for the Agricultural Department during the regular office hours of the day. And one work that I carried on in no way interfered with or infringed on the other work, because I kept them entirely separate and did them separately.

The CHAIRMAN. How long did the \$1,800 man who was doing the work that you went over there to do continue in the statistical branch of the bureau after you went there?

Mr. OLMSTED. A very short time, sir. He became sick. He was sick when I went there and he got worse, and he was a very short time afterwards placed on furlough, I think it was, or put on leave without pay and never was put back.

(Witness, Olmsted.)

The CHAIRMAN. What do you mean by "a short time?" Do you mean within a day or two or within a month or two, or what?

Mr. OLMSTED. Well, within a month or so. I do not remember exactly. That was a matter I had nothing to do with, because that was a matter for the Chief of the Bureau, and I was not Chief of the Bureau at that time.

The CHAIRMAN. I understand that you had no control over him?

Mr. OLMSTED. None whatever. In a short time he was put on leave without pay, or furlough, or whatever it is called, and never went back to work again, and finally died.

The CHAIRMAN. When he was put on furlough without pay was any other man put in his place?

Mr. OLMSTED. Yes; his position was filled in some way or other, or the money we used to pay him was paid to somebody else.

The CHAIRMAN. Was it a statutory salary?

Mr. OLMSTED. A statutory salary; yes, sir.

The CHAIRMAN. So that somebody was paid to draw that salary and do the work that he had been doing?

Mr. OLMSTED. No; not to do the work he had been doing, because I was doing the work he had been doing and a good deal more; but to do certain work in that office.

The CHAIRMAN. Why did it become necessary to continue that employee at \$1,800 if you were there doing that work?

Mr. OLMSTED. Because he was not continued at that work and no one else was. I did that work and a great deal more besides. I reorganized the whole work and put it on a different basis.

The CHAIRMAN. What did this man who took the place of this \$1,800 man go there to do?

Mr. OLMSTED. I do not remember who was promoted. I do not remember who Mr. Hyde promoted to his place, but he was given some work to do in the office that was required to be done—not the work that this other man had been doing, but he was given some work. They were all kept busy there all the time in some way or other. I do not remember now who was specifically promoted to fill the place.

The CHAIRMAN. You do not remember what he did do?

Mr. OLMSTED. No; because, as I say, I do not remember the individual who was promoted to fill that place.

The CHAIRMAN. Then up to the time you were appointed and went there, and not only did the work that Mr. Harrison had been doing, but a great deal more, there must have been a large accumulation of work that was not being done at all?

Mr. OLMSTED. There was. Things were in a chaotic condition; everything was behind and in a tangled mass which had to be straightened out. I had to reorganize the whole work.

The CHAIRMAN. What was the matter with Mr. Hyde, who was at the head of the Bureau? Was it not his business to have that tangle straightened out?

Mr. OLMSTED. Yes, sir; it was.

The CHAIRMAN. What was he doing?

Mr. OLMSTED. But he had not succeeded in doing it, for some reason.

The CHAIRMAN. How long had he been at that?

Mr. OLMSTED. For several years; I do not know how long before my time.

The CHAIRMAN. Had that tangle existed all the time?

Mr. OLMSTED. Well, sir, I can not say, because I had not been there all the time. I had been in the Philippine Islands for a year before.

The CHAIRMAN. You had the tangle before you went to the Philippine Islands, did you?

Mr. OLMSTED. Before I went to the Philippine Islands the tangle was existing to some extent; but it had grown worse—a great deal worse. I think it was largely due to the fact that this man's health had failed, and the work of the Bureau had largely grown, and he was not equal to it.

The CHAIRMAN. I know; but where was the head of the Bureau having charge of its efficiency?

Mr. OLMSTED. Well, I can not say. I am not here to condemn or defend the chief of the Bureau.

The CHAIRMAN. He is not here now?

Mr. OLMSTED. He is absent, on the other side of the water, and I am not responsible for him.

The CHAIRMAN. The long and the short of it is, then, that the Bureau was all tangled up?

Mr. OLMSTED. That part of the work was in bad shape when I took charge of it, sir—very bad shape.

The CHAIRMAN. Was that one of the important features of the work?

Mr. OLMSTED. It is one of the most important features of the work that is required of us.

The CHAIRMAN. So that in one of the most important features of the Bureau, for the last couple of years or so, as the result of Mr. Hyde's administration, the affairs were in a bad tangle?

Mr. OLMSTED. It was during his administration.

The CHAIRMAN. And the head of that branch was inefficient?

Mr. OLMSTED. Well, I suppose so. I know how it was when I took charge of it. How it was before that I can not say. When I took charge of that work, after my appointment as chief of the Division of Domestic Crop Reports, I found things in very bad shape. Mr. Hyde told me that the man he had had in charge of that work was wholly inefficient; his health was giving way, and he must have some one there that could run the thing properly and reorganize it, and that he could not wait any longer; that I must come back.

The CHAIRMAN. And that was in April, 1904?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. During what period of time did this controversy arise that has been going on in connection with that particular Bureau?

Mr. OLMSTED. That arose in 1904, I think; or was it 1905, Mr. Zappone?

Mr. ZAPPONE. I think it was in 1905.

Mr. OLMSTED. I did not occupy an administrative office before that time; I simply had charge of this tabulation; getting in reports and tabulating them.

The CHAIRMAN. To what period of time did that apply—that is, to statistics and occurrences that took place during what time? I

(Witness: Olmsted.)

understand that you had not the responsible charge. Of course you appreciate that I am not intimating anything of that kind.

Mr. OLMSTED. Yes.

The CHAIRMAN. But I simply want to get at your knowledge of it. In what particular period of time were these controversies located that afterwards arose—that is, in 1905?

Mr. OLMSTED. They were located between the time of my appointment as chief of the Division of Domestic Crop Reports and my appointment as Associate Statistician. Now, I am like all statisticians, Mr. Littlefield—you will have to pardon me—I never saw a statistician in my life that could carry any figures in his head. They always refer to the data. There are so many figures that they always make them a matter of record and refer to them. I am a little dubious on figures and dates therefore when I try to remember them; but that is a matter of record.

The CHAIRMAN. It is a matter of record; but your recollection would be that the statistics and occurrences that gave rise to that controversy, whatever it was, developed after April, 1904?

Mr. OLMSTED. Yes; they developed in 1905. I know now that they did.

The CHAIRMAN. In 1905?

Mr. OLMSTED. Yes; I remember now that they developed in 1905.

The CHAIRMAN. Of course, as I understand, you have not had responsible charge of that Bureau until lately?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. That is right, is it not?

Mr. OLMSTED. That is correct.

The CHAIRMAN. And when those things developed the Bureau was under the responsible charge of Mr. Hyde?

Mr. OLMSTED. It was; yes, sir.

The CHAIRMAN. And in connection with the work of what particular officials did that matter develop?

Mr. OLMSTED. The scandal which was given ventilation developed in connection with the work of Mr. Edwin S. Holmes, jr., the Associate Statistician, and Mr. Hyde, himself, the Statistician and Chief of the Bureau.

The CHAIRMAN. It developed between them?

Mr. OLMSTED. They were the parties drawn into the controversy against whom allegations of mismanagement or malfeasance were made.

The CHAIRMAN. Improper conduct?

Mr. OLMSTED. Yes; and it finally centered down, I believe, to Mr. Holmes himself individually. There was nothing developed to implicate Mr. Hyde in any wrongdoing.

The CHAIRMAN. And nothing that indicated any inefficiency or improper conduct on the part of any officials below Holmes?

Mr. OLMSTED. No, sir; nothing at all.

The CHAIRMAN. So that whatever occurred is simply centered around Holmes?

Mr. OLMSTED. Around Holmes; yes, sir.

The CHAIRMAN. Of course that is something for which he would be individually responsible?

Mr. OLMSTED. He is under indictment now, awaiting trial for his conduct of the office.

The CHAIRMAN. You may state briefly, so that we will have it in the record, what the nature of that controversy was.

Mr. OLMSTED. The charges that were made were to the effect that Mr. Holmes had given advance information as to what the report of the Bureau regarding cotton would indicate; that he had profited by it, sold it, and that he had himself manipulated the figures of the report so as to affect the price of cotton, and profited by it personally. That, in substance, was the charge. That is correct, is it not, Mr. Zappone, as I have stated it?

Mr. ZAPPONE. There is one thing that I do not believe you have added—that is, that it was through the stock market.

Mr. OLMSTED. Through the stock market; yes. I never heard any charge against him as to wheat, or oats, or corn, or anything else. The only charges that I know of were in relation to his handling of the reports regarding cotton.

Mr. ZAPPONE. I have never seen anything on any other subject.

The CHAIRMAN. Do we understand that all of your time during office hours was occupied in the Department of Agriculture after your appointment to the position you have spoken of?

Mr. OLMSTED. Yes, sir; except that perhaps two or three times a week, as I kept a wheel, I would run over to the Census Bureau for half an hour in connection with some point they would telephone me about. I would run over there, with the consent of the chief of the Bureau, always letting him know, never being absent more than half an hour at a time, and come right back again on my bicycle, at times when it would not interfere with the conduct of business anywhere in the Department of Agriculture. I took just a few moments at a time.

The CHAIRMAN. Then, with the exception of half an hour occasionally, all of your time was devoted to your work in the Department of Agriculture?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. During the whole working day?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. You were right there at your desk in the Department the whole time?

Mr. OLMSTED. Yes, sir; and I will say, Mr. Littlefield, that to make up for that—I was very conscientious about it—I made it a point to always get to the office from half an hour to an hour before 9 o'clock in the morning, so as to more than compensate for any little time I might take during the day when I would run over to the Census Bureau.

The CHAIRMAN. Whatever you did in that line you did with the approval of your superiors?

Mr. OLMSTED. Always with my superior's consent and with his knowledge. And then I would like to say further that during that time I did not take any annual leave from the office to the extent that I might have taken, simply because I did not want it to appear that I was using the annual leave for the purpose of working on the Philippine Census. I thought somebody might think I was doing it for that purpose, so I did not take it, and stayed at the office all the time. The records will show that.

The CHAIRMAN. As Chief of the Bureau of Statistics, will you state in detail the character of the statistics that are being collected now by your Bureau?

Mr. OLMSTED. It is pretty extensive. If I could file my recent annual report as my answer, it would answer that question completely.

Mr. ZAPPONE. I have your annual report here.

The CHAIRMAN. I want to get these things in as short a form as I can, so as not to take up unnecessary space. I just want the subjects to which your statistics relate. I will hand you your report and you can refresh your recollection from it. Of course, in the first place, I want it full enough to do justice to the Bureau.

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. And then I want it as concise as you can make it, without taking up unnecessary space.

Mr. OLMSTED. There is one place there that gives it very concisely.

Mr. ZAPPONE. I think the duties of that Bureau are expressed in the Congressional Directory better than anywhere else that I have seen them. The duties specified there have been gone over very carefully by each chief of bureau. I have quoted from the Congressional Directory once or twice and I think that if this is turned over to Mr. Olmsted, the Chief of the Bureau of Statistics, he will find that it fully covers the scope of his work. It is largely based upon the wording of the law, which is here.

The CHAIRMAN [after examining the book referred to]. This does not include any subjects, however.

Mr. OLMSTED. Well, I have it right here. I can give it to you.

The CHAIRMAN. Just state the subjects briefly; confine yourself to the subjects.

Mr. OLMSTED. Yes. Continuous inquiry is made regarding agricultural areas, conditions, and yields, as far as the principal products of the soil are concerned, while many minor crops are dealt with from month to month throughout the year. The number and value of farm animals and the loss of such animals annually resulting from disease and exposure are reported upon, and the information from month to month regarding crops and farm animals is placed in comparison with similar information at corresponding dates in preceding years. Cotton is reported upon seven times, wheat eight times, corn and oats each six times, barley, rye, buckwheat, hay, grass, potatoes, tobacco, fruit, rice, and forty other minor products, from two to eight times each year.

The CHAIRMAN. Those are agricultural products?

Mr. OLMSTED. All agricultural and primary products of the soil. During the year plans were formulated and carried into effect for securing information enabling the making of monthly reports upon twenty-five crops not previously dealt with by the Bureau. Now, those crops are crops that are of some local importance in certain sections of the country, but not of national importance—for instance, the peanut crop, the cranberry crop, the orange crop, and, while I can not carry them all in my head, many minor crops of that kind.

The CHAIRMAN. Crops that are indigenous to particular sections?

Mr. OLMSTED. That is the idea exactly. But the great principal farm crops of the country we handle, just as we have always handled them, by estimating the area devoted to them in the planting season;

(Witness: Olmsted.)

and then from month to month we report on the condition of the growing crop, so that those interested may know what the probable yield will be and can lay their plans accordingly. Then at the end of the year we make estimates as to the total production of those crops—that is, wheat, corn, oats, barley, rye, buckwheat, and the other principal crops of the country, including tobacco and cotton.

The CHAIRMAN. How long has the Census Bureau been in existence as a permanent Bureau?

Mr. OLMSTED. The United States Census Bureau?

The CHAIRMAN. Yes.

Mr. OLMSTED. It was made a permanent Bureau since the completion of the Twelfth Census. I do not know the date. I was not connected with it, of course.

The CHAIRMAN. That is what I wanted to get at. To quite an extent these statistics that you collect are duplicates of the statistics collected by the Census Bureau, are they not?

Mr. OLMSTED. Not at all; not at all.

The CHAIRMAN. Not at all, you say?

Mr. OLMSTED. No, sir; because the Census Bureau takes an agricultural census once in ten years only, while the—

The CHAIRMAN. Yes; but under this new act they are making a yearly census.

Mr. OLMSTED. Not of agricultural products. They make a report as to the number of bales of cotton ginned—just one crop out of the whole lot.

The CHAIRMAN. Do they make any census of farm animals?

Mr. OLMSTED. They do not.

The CHAIRMAN. Then the Census Bureau, which is created for the purpose of permanent statistical work, does not do anything that your Department does, except prepare statistics on the question of cotton production?

Mr. OLMSTED. That is all, and that is a very small matter with us, compared with the great mass of our work.

The CHAIRMAN. So that there is absolutely no duplication between the work in your Department and the work in the Census Bureau?

Mr. OLMSTED. No, sir; there is no duplication. In point of fact, I will say, Mr. Littlefield, that our Bureau does the work that the Census Office does not do. We supply information, as far as we can, that is demanded by the public that the Census Office can not give them. The Census Office gives it once in ten years. We undertake to give it in every way each year.

The CHAIRMAN. Of course they do not give it to them oftener, because they only take the census once in ten years.

Mr. OLMSTED. That is the idea; while we make annual estimates of these things, based on the best information that can be secured. There is a bill now before Congress providing that a quinquennial agricultural census shall be taken by the Census Bureau, but it has not passed yet.

The CHAIRMAN. Are there any statistics that are collected by your Department on any of these items that are duplicates of statistics collected by any other bureau of the Government?

Mr. OLMSTED. No, sir; except this: That in our division of foreign markets (a small division of the office, for which less than \$5,000

(Witness: Olmsted.)

is appropriated) we do secure from the Department of Commerce and Labor data regarding the exports and imports of farm products and farm animals; and arrange them in a way that they can be readily seen by people interested, which is not done by the Department of Commerce and Labor. That is a small part of the work, however; that is a small matter.

The CHAIRMAN. You get that from Mr. Austin's bureau?

Mr. OLMSTED. Yes; we get advance sheets if we can, and if we can not wait until his report is issued we segregate from his report the items that pertain particularly to agriculture and bring them together.

The CHAIRMAN. But you do not send out any men to collect that information?

Mr. OLMSTED. No, sir; not that information.

The CHAIRMAN. But you rely on his bureau?

Mr. OLMSTED. We get the information from his bureau.

The CHAIRMAN. And he transmits it to you?

Mr. OLMSTED. That is all.

The CHAIRMAN. Does he get any information from your bureau for his work?

Mr. OLMSTED. Oh, yes; he uses our figures all the time in his annual publications—his statistical abstracts.

The CHAIRMAN. Does he have any men out in the field collecting statistics?

Mr. OLMSTED. Not of the kind we furnish him; no, sir.

The CHAIRMAN. Does he of any kind, so far as you know?

Mr. OLMSTED. Not to my knowledge.

The CHAIRMAN. Does he rely altogether on your bureau for statistical information in relation to agricultural matters?

Mr. OLMSTED. So far as I know, he does; yes, sir. He publishes our figures from year to year as we give them to him.

The CHAIRMAN. So that there would be no duplication of work in his bureau in that respect?

Mr. OLMSTED. No, sir.

The CHAIRMAN. He would be simply taking the results of the work your people do?

Mr. OLMSTED. That is the idea.

The CHAIRMAN. But do you publish all those same statistics?

Mr. OLMSTED. We publish them from month to month.

The CHAIRMAN. And he publishes them?

Mr. OLMSTED. Once a year, in a little appendix, or as a part of his statistical abstract.

The CHAIRMAN. It is not such a tremendously little appendix, is it?

Mr. OLMSTED. Well, I mean that that part of it is small compared with the great mass of the data he publishes in his appendix. He compiles those figures and gives them general circulation.

The CHAIRMAN. The only duplication, then, in that respect would be—

Mr. OLMSTED. In the matter of printing.

The CHAIRMAN. In the matter of printing?

Mr. OLMSTED. Yes; and it gives additional circulation to these facts that the people want. It reaches a set of people that our figures might not reach.

(Witness: Olmsted.)

The CHAIRMAN. And the only duplication of statistics, so far as you know, connected with your Bureau is on the part of the Census Department, and that is in relation to the one item of cotton, and that is only a very small matter?

Mr. OLMSTED. Yes; and that is not a complete duplication, for this reason: The Census Bureau only does one thing in regard to cotton; that is, they report twice every month during the picking season as to the amount of cotton ginned.

The CHAIRMAN. Do they have men out in the field to collect that information?

Mr. OLMSTED. They do. They have a large force. They spend much more on that one thing than we spend for our entire Bureau.

The CHAIRMAN. What?

Mr. OLMSTED. Yes, sir. There is a larger amount of money appropriated for the Census Bureau to collect that class of information than we spend on our entire Bureau for all of our work for all crops. That is my information.

The CHAIRMAN. I do not quite appreciate the force of that. It seems to me—

Mr. OLMSTED. I can tell you why it is.

The CHAIRMAN. Let me ask you this question right here. They deal with getting the same kind of information that you do?

Mr. OLMSTED. No, sir; it is not the same kind of information. We deal with the same subject, but it is not the same kind of information. We both deal with cotton.

The CHAIRMAN. What is the relative importance of the two kinds of information?

Mr. OLMSTED. I will explain to you.

The CHAIRMAN. Yes.

Mr. OLMSTED. At the beginning of each year our Bureau makes an estimate, based on the best obtainable information, of the area planted to cotton at the beginning of the year. The Census Office never does that. During the growing season, from month to month, our Bureau collects and publishes information showing the condition of the growing crop each month.

The CHAIRMAN. You have to have men in the field, then?

Mr. OLMSTED. We do have some men in the field.

The CHAIRMAN. For the purpose of getting at the area planted?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. And the Census Bureau is also collecting statistics on the basis of the area planted?

Mr. OLMSTED. No, sir; they are not.

The CHAIRMAN. Well, what are they doing?

Mr. OLMSTED. I will explain it to you.

The CHAIRMAN. Yes.

Mr. OLMSTED. During the growing season we make estimates from month to month, based on the best obtainable information, as to the condition of the growing crop, which we publish. The Census Office does not do that at all. In December of each year we make a forecast, long before the crop is harvested, of what the probable quantity of cotton produced will be.

The CHAIRMAN. That is just a conjectural estimate?

(Witness: Olmsted.)

Mr. OLMSTED. That is an estimate. It does not purport to be anything but an estimate. It is not an actual count.

The CHAIRMAN. Yes; but that is the estimate of which some people complain?

Mr. OLMSTED. That is the final estimate of the year. That is only one branch of our handling of the cotton statistics. The Census Bureau, on the other hand, does an accurate piece of work. They do not make an estimate at all, but they collect figures and make an actual enumeration, twice every month, of the quantity of cotton ginned, and publish that. Their final report as to the quantity of cotton produced (which is the quantity ginned, of course) does not appear until along in March or April, I am not sure which, of the following year.

The CHAIRMAN. Do you make any report as to that?

Mr. OLMSTED. We make our forecast in December.

The CHAIRMAN. Do you make any report from time to time as to the amount of the cotton ginned?

Mr. OLMSTED. No, sir; we do not. We have no means of collecting that information. The Census Bureau does that. That would be a duplication of work, if we did that. They do that.

The CHAIRMAN. That, really, is the only definite information about the whole crop? The rest is all conjectural, is it not?

Mr. OLMSTED. Yes, sir; they give definite information as to the quantity of cotton ginned at the end of the season.

The CHAIRMAN. And is not that the only real definite information we get in any way about the cotton situation?

Mr. OLMSTED. It is the most exact information; it is bound to be, because it is an actual enumeration. But the point is this: The final report of the Census Bureau as to the quantity of cotton ginned is not made until along in March or April, while our forecast is made at a time when the people seem to want it, at the time it has always been made, in December. Ours is an estimate; it is a forecast.

The CHAIRMAN. Do you not use the Census Bureau reports as a basis for your estimate?

Mr. OLMSTED. We do as far as we can. I have used them myself this year for the first time; but my predecessor did not use them for some reason; I do not know why.

The CHAIRMAN. That is to say, they did not avail themselves of the only definite information?

Mr. OLMSTED. They did not avail themselves of the only definite information. I have used it, and I always shall use it, in connection with all the other information I can get.

The CHAIRMAN. But your predecessors did not avail themselves of the only definite information available?

Mr. OLMSTED. It would seem that they never did. If they did it, I do not know it.

The CHAIRMAN. But you are doing it now?

Mr. OLMSTED. I am doing it.

The CHAIRMAN. When you have men in the field for the purpose of making estimates of the acreage and watching the process of development and growth, why can not those same men get the same statistics that are now being procured by the Census Bureau?

Mr. OLMSTED. Simply because we have not enough of them. It

(Witness: Olmsted.)

takes a large army of men to collect those ginning statistics. We only have 15 traveling men altogether on salary. It would be impossible for 15 men to collect all those ginning statistics. There are 30,000 gins in the United States. The Census Bureau has a salaried man in every county in the cotton-producing section.

The CHAIRMAN. And the Census Bureau does not collect anything but cotton statistics?

Mr. OLMSTED. That one item of cotton statistics is all they care for; and they spend more on that than we spend on the whole business of my Bureau.

The CHAIRMAN. On the whole business?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. Of what practical value, prior to this year at least, have those statistics that have been collected by the Census Bureau been to the cotton manufacturers or the cotton growers of this country?

Mr. OLMSTED. That is a question that the cotton manufacturers and the cotton growers could answer better than I could; but I believe that the Census Bureau figures are of great value.

The CHAIRMAN. In what way have the figures that are collected by the Census Bureau under these circumstances proved of value to the men engaged in that industry? I do not assume that they have not been of any value, but I want to know what value they have?

Mr. OLMSTED. In this way: They begin early in the picking season, and every two weeks they make a report as to the quantity of cotton ginned during the preceding two weeks. Now, my idea is that the manufacturer and the grower, or anyone else interested, can take those figures and can form in their own minds some sort of an estimate, comparing them with preceding years, as to what the total crop will probably be. They can not make an accurate estimate, of course, because the figures have shown that the percentage ginned in various years varies very greatly—one year is no criterion for another year; but they can get some idea of what the total crop will be. That is the only object of the thing, anyway; that is all it is for. That is the only object of the investigation, and that is the value of the Census Bureau figures, and their big value, their great value. They are a great help to me; they were this year, I know. I would not want to do without them.

The CHAIRMAN. They seem to furnish the only absolute basis you have.

Mr. OLMSTED. No; we have very many other sources of information, Mr. Littlefield.

The CHAIRMAN. How do you get that information now on cotton production?

Mr. OLMSTED. We get it from various sections of the country by correspondence. In the first place, we have some field agents who travel continuously over the field and investigate conditions, not only for cotton, but for all crops growing in their districts. Cotton is given undue prominence because it is so important in the minds of the people who handle it; but they investigate everything—wheat, corn, and everything else. With me cotton is only one product out of many crops.

(Witness: Olmsted.)

The CHAIRMAN. I understand. How many men have you traveling in the field?

Mr. OLMSTED. In the cotton States we have six; but then, in addition to them, we have in each State in the South a State agent who operates in that State only.

The CHAIRMAN. What does he do?

Mr. OLMSTED. He has a large corps of correspondents, and he also travels over his State so far as possible and collects information from his voluntary correspondents scattered all over the State, who report to him. He tabulates their reports, and in connection with their reports he gives his own personal observation and knowledge of the situation, and he reports to me. That is two sources of information that I have—the field agents and the State agents. Then I have in every county a man who has two or three people reporting to him, and this man is called a county correspondent. He makes a report to me once a month. He is unpaid; his services are voluntary.

The CHAIRMAN. He simply writes a report to you?

Mr. OLMSTED. Yes. We give him seeds and books and things of that sort, but we do not give him any money. He reports to me once a month. That is three sources of information we have. Then we plan to have in the principal agricultural townships of every county a correspondent who reports to me every month. That is four sources of information. At the beginning of the year we call on ginners for information as to the probable acreage planted in the vicinity of their gins.

The CHAIRMAN. You say "call on them." What do you mean—that you write to them, or call on them in person?

Mr. OLMSTED. We send them a printed schedule, which they are requested to fill out and send back to us in a penalty envelope that we inclose with it. That is five sources of information. Then we have a large list of good farmers, rather better than the ordinary, I think, that we call the individual farmers list. We send them a schedule, and they report to me here in Washington. That is six sources of information. Then we have, in the case of cotton, a list of correspondents called special cotton correspondents, composed of bankers, merchants, agricultural implement dealers, dealers in fertilizers, country merchants, and men of that sort, scattered through the cotton-growing region, whom we send schedules to, and who report to me personally.

There are seven sources of information that we have, each independent of the other, and no man who reports on one list is included on any other list, so that they are all independent of each other. Now, those seven sources are brought together and tabulated in the office in this Division of Domestic Crop Reports. Five of them are separately and independently worked out and placed in parallel columns, side by side, for my use in tabulating the final estimates of the Bureau each month. There I have seven sources of information twice a year, and always at least four sources (never less than four; I always have my State agents, my special field agents, my county and my township correspondents) every month. I have four sources always, and in months where it is very important I call on these additional sources, so that I have from four to seven sources of information every month, reporting independently. I get in that way a

(Witness: Olmsted.)

very good consensus of opinion. Then, in making up my final estimates I do not rely on my own judgment alone, but I have a crop-reporting board, consisting of officials and employees of the Bureau, that I call in on cotton—men from the South, employed by the Bureau, who are themselves familiar with cotton and are——

The CHAIRMAN. Do you mean field agents?

Mr. OLMSTED. State agents and field agents. Latterly I have been calling on State agents, and they form a part of the crop-reporting board. There are five members of that board, including myself. I place before each member of that crop-reporting board a sheet on which are tabulated, in parallel columns, the figures resulting from the reports of these different classes of correspondents for each State. Those men sit down and, independently of each other, without consulting each other, after reading the reports of the Weather Bureau, any special letters received, any special reports we have, and any other information at all that we deem reliable, each member of the board considers each State separately and formulates a figure for that State without consulting the other members.

After that has been done by each member of the board separately, the results obtained by them are brought together on a final sheet in parallel columns, and then the board as a whole considers them. Where the disagreement is very wide, which it seldom is—it is remarkable how closely the independent judgments of those men agree—we discuss the matter. We go over the ground again. We reconsider the information we have had before us, and the result of the whole thing is that we finally agree on a figure, either as to acreage, condition, yield, or whatever the subject may be that we have under discussion, for each State separately. Having that, we arrive, by a scientific process, at a figure that is known as the “weighted average” for the whole United States.

If you would like to have me, I will explain the term “weighted average.” We weight the figure for each State by the acreage of that State or the production of that State—it depends on the crop—or a combination of both, so that each State will be given its relative importance. For instance, Texas produces a great deal more cotton than any other two States, I might say; so it would be entitled to much more weight in this final computation than a State like Tennessee or a State like Virginia, which produces very little. And in that way we arrive at a weighted figure for the whole United States.

The CHAIRMAN. That simply results in a general average of information?

Mr. OLMSTED. A scientific weighted average for the United States.

The CHAIRMAN. Yes. What proportion of the information that you obtain—upon which you make your estimate—is obtained from correspondence, as distinguished from personal investigation by your agents?

Mr. OLMSTED. We receive a great many more reports from correspondents, of course, because we have many thousands of them.

The CHAIRMAN. About what percentage of the information that you finally act on?

Mr. OLMSTED. About 80 per cent.

The CHAIRMAN. I will not ask you to go into that in detail, but it impresses me that the overwhelming preponderance of information that you have is from correspondents.

(Witness: Olmsted.)

Mr. OLMSTED. The preponderance is from voluntary correspondents; but we have found that the information of our field agents and our State agents is sometimes—it depends on circumstances—entitled to more weight than that given by the voluntary correspondents.

The CHAIRMAN. It was not so much a question of weight with me; but taking the aggregate of information, I rather got the impression from your statement that probably 80 per cent of this information was from correspondents.

Mr. OLMSTED. We get more information from voluntary correspondents than from any other source, considering the number of pieces of papers we get—the actual reports we receive.

The CHAIRMAN. That is what I mean.

Mr. OLMSTED. Of course the great mass of the reports we receive comes from voluntary correspondents.

The CHAIRMAN. Eighty per cent of it?

Mr. OLMSTED. Yes; I should say so. The other 20 per cent is from salaried officials who are paid to do this work and devote their whole time to it and do nothing else.

The CHAIRMAN. That is, as distinguished from the voluntary correspondents?

Mr. OLMSTED. As distinguished from the voluntary ones.

The CHAIRMAN. But as to the salaried officials—in other words, not over 20 per cent of your information comes from personal investigation by the direct representatives of the Department; but the information is collected, other than about 20 per cent of it, through voluntary correspondents, such as you have explained?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. Now, how do you reach your percentage of change in conditions from month to month?

Mr. OLMSTED. In this way. The same way that is adopted by all scientific agricultural bureaus throughout the United States, and in every State of the Union, so far as I know, and in Austria and Germany and Great Britain and Russia and everywhere else. We adopt a basis called the normal; that is, such a condition as gives promise of a full crop.

The CHAIRMAN. What is your normal crop figure?

Mr. OLMSTED. The normal condition is such a condition as gives promise, at the date the observation is made, of a full crop. That is represented by 100. Now, if a farmer or any other man thinks that the evidences are, at present, that only 75 per cent, or three-fourths of a crop, will be made, he will give the condition as 75. If he thinks things are in very bad shape, so that they are only going to make half a crop, he will say the condition is 50. If he thinks that they are going to make within 10 per cent of a full crop, if the conditions are very good, he will say it is 90. If it is an abnormally good year, he might say it is 101 or 102.

The CHAIRMAN. Now, what is the basis of a full crop—what is assumed as 100?

Mr. OLMSTED. That is a very variable thing.

The CHAIRMAN. That is what I want to get at.

Mr. OLMSTED. Every farmer, every grower of wheat, corn, rye, oats, cotton, or what not, has in his own mind his idea of what a full crop would be. In Ohio 40 bushels per acre would be a full crop of corn.

The CHAIRMAN. Let me ask you this question right there, so that you can explain it as you go on—because I want you to explain it fully: Is not that really the factor that renders the whole equation unstable and uncertain?

Mr. OLMSTED. No, sir; that is what renders it certain.

The CHAIRMAN. Go on and explain it then.

Mr. OLMSTED. If we adopted a fixed figure with reference to that normal, it would not be certain at all, because that fixed figure would not apply to every locality. Every locality has a different measure of a full crop. In Ohio, for instance, we might say that the normal crop would be 40 bushels per acre. In South Carolina it would be 10 bushels per acre. Those farmers know what a full crop is in their country.

The CHAIRMAN. Do they, within your knowledge, take, say 40 bushels per acre as the normal, 100 per cent?

Mr. OLMSTED. If that is the full crop in the locality of the man who makes the report as to that. We can not fix it.

The CHAIRMAN. Does that vary in every locality? For instance, does one farmer say to himself—

Mr. OLMSTED. No; not every locality. It varies in every considerable section, of course, but not in every little locality. One part of a State will make 40 bushels per acre, normally, if a full crop be made; while in another section of the same State the farmers may make 35 bushels per acre as the normal. The land is not quite so good.

The CHAIRMAN. Are you in the possession of information so that you know what the exact normal figure is?

Mr. OLMSTED. No; but these correspondents are. They live there. They are on the ground, and they know for their own locality what the normal crop is there. They are asked to report on that basis, and they do report on that basis, and have done so for the last forty years.

The CHAIRMAN. And whatever standard, in their judgment, is the normal standard is the basis of your information?

Mr. OLMSTED. That we adopt; yes, sir; and we do not pretend that it is anything else but a comparison with the normal condition. The whole commercial world, in the case of cotton, for instance, when we say that the condition of the cotton crop is 75 (if that should be the figure) would know that the indications at that time were, according to the opinions of the people who made the reports, that three-quarters of a normal crop would be made.

Those figures are valuable particularly as they are used in comparison with preceding years. You see, we have a ten-year basis, which we keep up all the time. We give an average for ten years, and we show the preceding year in comparison with the average years for the same month, and that results in a formula which enables us to work out, by means of these condition figures, very closely what the crop may be. It works out nearly exactly all the time; and if my predecessors had confined themselves to that formula they would have been much closer in their estimates for many crops than they have been.

The CHAIRMAN. What have been the results heretofore in connection with this Bureau as to the cotton crop? What I want to know is, how have the actual results of the crop compared with the forecasts and estimates made by the Department?

(Witness: Olmsted.)

Mr. OLMSTED. They have resulted, when reduced to a common basis, in marvelous accuracy—something almost unbelievable. Mr. Hyde, my predecessor, had a way of estimating the crop in bales of an indefinite weight. He did not state the weight of the bales, and no one knew what those bales weighed. He would not say. He would say “so many bales.” But by going back into his figures, and digging into them, I have found the number of pounds that he used in arriving at his bales.

The CHAIRMAN. He did not give the public that information?

Mr. OLMSTED. No; he would say “so many bales,” without saying how much the bales weighed.

The CHAIRMAN. What is that sort of an estimate worth?

Mr. OLMSTED. I did not regard it as valuable at all, myself; and I changed the whole thing when I took charge of it, as soon as I could.

The CHAIRMAN. How long had this Department been running this thing on the basis of bales, without letting anybody know what the bales were?

Mr. OLMSTED. I do not know how long; but I know that the bales he estimated did not compare at all with the bales as finally determined, because they were bales of a different kind. The Census Office bales have been 500-pound bales, gross weight, since 1899. His bales were bales of an indefinite weight.

The CHAIRMAN. They might just as well have been in pounds, or better; might they not?

Mr. OLMSTED. Well, I do not think it was a proper way to do the work; but that is the way he made his estimates. It would have been just as easy to make them in bales of a definite weight, which I have done since Mr. Hays was in charge of the Bureau, last year, and I have continued it since I have been in charge; and I intend to do it.

I believe you asked how close the estimates have been?

The CHAIRMAN. Yes.

Mr. OLMSTED. I took the Census Office bales from 1899 up to last year and reduced them to pounds. Then I took the estimate of the Bureau in bales and went back to the original figures and found how many pounds there were in the bales; and I found that there was a marvelous closeness. The widest divergence that I found was 4.4 per cent, and it ran down in some years to a fraction of 1 per cent; but the average divergence for a period of seven years was only seven-tenths of 1 per cent, taking the pound basis, by which cotton is bought and sold. It is not bought and sold by the bale; it is bought and sold by the pound, and the pound is the true measure of any crop of cotton—the true measure of the quantity of cotton produced.

The CHAIRMAN. And your statement now is based upon information on file in the Department?

Mr. OLMSTED. Yes, sir; but not published.

The CHAIRMAN. What we would like to know is how nearly the actual results have tallied with the estimates of the Department, published and given to the public. The information on file in the Department, that does not go to the public, is not of very great value to the public.

Mr. OLMSTED. You are right about that, certainly. Comparing the number of bales estimated by Mr. Hyde with the number of some other kind of bales, nobody knows what kind, as afterwards deter-

(Witness: Olmsted.)

mined, there was considerable divergence. There was a divergence as high as 10 per cent some years, or perhaps higher.

The CHAIRMAN. I do not see, then, from your explanation, that his estimates were worth anything.

Mr. OLMSTED. I do not think they were very valuable, sir.

The CHAIRMAN. I do not see how they could be.

Mr. OLMSTED. I do not think so. But, Mr. Littlefield, I want to say this to you: That in every other subject he dealt with except cotton he dealt in a definite unit. Cotton is only one thing that the Bureau deals with, you know; and the amount of money that is devoted to cotton out of our total appropriation does not amount to \$25,000 a year, because we have all these other crops. Now, I will say, in justification of the former statistician, that with every other crop he did deal in definite units. For instance, he estimated the number of bushels of wheat, and the number of bushels of rye, and the number of bushels of corn, and the number of pounds of flax seed, and the number of tons of hay. In everything else, in every other estimate except cotton, he did deal in a definite unit. But in cotton, for some reason, the unit of his estimate or the basis of his estimate was indefinite.

The CHAIRMAN. He seems to have differentiated between that and the other crops.

Mr. OLMSTED. But I have made it definite, and I propose, as long as I am there, to keep it so, in spite of the protests of people who would like to have my estimate in an indefinite form that anybody could twist to mean what they pleased.

The CHAIRMAN. That simply keeps the market in an uncertain condition all the time?

Mr. OLMSTED. Why, certainly. In the case of my estimate, I think anybody of ordinary intelligence knows what I mean. Whether I am right or wrong, they know what I mean, at any rate.

The CHAIRMAN. I received a letter last March which I will now read, so that you can explain in relation thereto. I imagine that what you have already stated perhaps furnishes the explanation, but at any rate I want you to explain it in your own way.

Mr. OLMSTED. Yes, sir.

The CHAIRMAN (reading):

NEW YORK, *March 31, 1906.*

HON. CHAS. E. LITTLEFIELD,

House of Representatives, Washington, D. C.

DEAR SIR: I notice by the newspapers that an investigation is being conducted by the Committee on Expenditures of the Department of Agriculture with the view of reducing unnecessary expenditures of public money.

I have for thirty years been a compiler and publisher of statistics in reference to cotton, and I doubt very much if anyone outside of the Department of Agriculture itself has paid more attention to the reports of the Department in respect to cotton than I have.

The estimates of the Department of Agriculture in respect to acreage and yield and the condition of cotton have for a number of years been exceedingly inaccurate.

The object of the reports issued by the Department of Agriculture in respect to cotton and in respect to other agricultural products is to give those interested in these matters reliable information respecting them. Many of the reports issued by the Department of Agriculture, if published without the Government stamp upon them, would not have the slightest credit with intelligent men in the cotton trade anywhere, because they are frequently on their face so grossly and absolutely inaccurate. Incorrect statements issued by the Government in regard to anything are not only of no benefit to the public, but are absolutely harmful to all legitimate interests, because they mislead people.

Some of the reports which are issued by the Department of Agriculture are duplicated by the Census Office; and surely it would be a matter of sound economy to prevent the duplication of what is supposed to be practically the same information. In view of the absolute unreliability of the estimates of the Department of Agriculture in regard to acreage in cotton, I am sure that the consensus of opinion of cotton manufacturers and cotton merchants would favor the absolute discontinuance of all estimates by the Department of Agriculture in respect to the acreage or the yield of cotton. It seems to me there is no excuse whatever for having the Department of Agriculture continue these estimates in regard to the yield of cotton crops when the Census Office publishes at frequent intervals reports on the cotton which has actually been ginned of each crop. The census figures are facts, while the figures of the Department of Agriculture are nothing but guesses, and frequently very bad ones.

In view of the constant misleading errors which have been made by the Department of Agriculture in respect to acreage in cotton, it seems to me that it would be wise to have the acreage of cotton ascertained by the Census Office. Prominent gentlemen largely engaged in the cotton trade, as factors who sell cotton for the planters, exporters who buy cotton for export, and cotton buyers who buy cotton for our domestic mills, have written me recently, and the consensus of their opinion is that the reports of the Department of Agriculture in respect to the acreage, the condition, and the yield of cotton should be discontinued, because they tend to greatly disturb legitimate business by causing sudden and great fluctuations in the price of cotton.

I beg to inclose copies of some of the letters which I have received, and invite your especial attention to them. They are from gentlemen of high standing, as you may easily ascertain by referring to any volume of Commercial Reports, which I am sure the Washington bank with which you deal would place at your disposal.

I invite your especial attention to the letters from John M. Parker, esq., who is one of the most prominent cotton factors and commission merchants in New Orleans, and at the same time a planter himself; and to the letter of Gen. William W. Gordon, of Savannah, who is one of the best-known cotton factors of that city.

Should you desire them, I can furnish you with many other letters of the character of the ones which I now send to you, or can send the original letters themselves, if desired.

The Hon. Edward D. White of the Supreme Court will tell you in regard to my standing and character.

Yours, very truly,

ALF. B. SHEPPERSON.

Mr. OLMSTED. Yes; I know him. I want to say, in connection with that, that the National Association of Cotton Manufacturers have negatived all that by their action in the last convention. Mr. Lovering, who is the president of the New England Association of Cotton Manufacturers?

Mr. LOVERING. Mr. McColl.

Mr. OLMSTED. Yes; Mr. McColl.

The CHAIRMAN. I will simply say here that I think that letter states the whole situation from his point of view.

Mr. OLMSTED. Yes.

The CHAIRMAN. And I have some other correspondence, not a great deal; some favoring and some opposing the continuation of the reports.

In the first place, I think you had better state, Mr. Olmsted, when you made this change in the method of work of your Department.

Mr. OLMSTED. The change in the manner of expressing the estimates in a definite unit?

The CHAIRMAN. Yes; in the manner in which you are now putting out your information.

Mr. OLMSTED. Yes, sir. As soon as I was placed in a position where I could see the inner workings of the office I discovered what seemed to me to be this wholly inadequate way of expressing the estimate, and when it became time to make the December estimate I had formulated—

The CHAIRMAN. December of what year?

Mr. OLMSTED. December, 1905—I had formulated a plan of expressing it in a definite unit instead of a vague, indefinite unit. I secured, after considerable discussion and persuasion, the consent of my immediate superior, who was favorably inclined to anything that would improve the service, as soon as he saw what I was driving at. After consultation with other gentlemen I secured the adoption of this method, and in the December estimate of 1905 we did express the number of bales that we thought would be produced that year in a definite unit, a bale of 500 pounds gross weight; and I will say that we came within 4.7 per cent of the actual fact, as we found some months later by the Census Bureau report. So that it was pretty close, you see—reasonably close.

The CHAIRMAN. Since December, 1905, you have given the estimates on that basis?

Mr. OLMSTED. No; we did not make any other estimate of that kind until December, 1906. The intervening estimates on our other subjects are not dealt with by the Census Bureau at all.

The CHAIRMAN. Then the only estimate you had made prior to the letter written by Mr. Shepperson on March 31, 1906, was the one you made in December, 1905?

Mr. OLMSTED. The only quantitative estimate was that of December, 1905; yes, sir. That man knew that when he wrote that letter, and he knew also when he wrote that letter, that we were within about 4 per cent of the actual fact, as actually discovered later. What is the date of that letter, by the way?

The CHAIRMAN. March 31, 1906.

Mr. OLMSTED. Perhaps he did not know it then, because it had not been developed; the Census Bureau had not made its final report at that time.

The CHAIRMAN. What I wanted to get at was whether or not the letter written by Mr. Shepperson was either before or about the time when you had made this change.

Mr. OLMSTED. It was after we made the change, because we made the change in December, 1905.

The CHAIRMAN. Exactly so.

Mr. OLMSTED. And that letter is written in March, 1906; was it not?

The CHAIRMAN. Yes.

Mr. OLMSTED. It was after we had made the change, and after we had expressed our estimate in a definite unit.

The CHAIRMAN. But you had not made any intervening estimates prior to this letter of his?

Mr. OLMSTED. No, sir; between our December quantitative estimates and the writing of the letter we had made no estimates at all regarding cotton.

Mr. LOVERING. Did you not make an estimate of the condition in August?

Mr. OLMSTED. In August? Oh, yes; we made one in August; but you see that is in March.

Mr. LOVERING. Did you not make an estimate of the acreage in August?

Mr. OLMSTED. No; not in August. We made one in June.

Mr. LOVERING. I meant in June.

(Witnesses: Olmsted, Lovering, Zappone.)

Mr. OLMSTED. Yes, sir.

Mr. LOVERING. I should have said in June.

The CHAIRMAN. June, 1906?

Mr. LOVERING. June, 1906.

Mr. OLMSTED. This letter was written in March, 1906, you see. That was after this letter had been written.

Mr. ZAPPONE. As a matter of fact, at the time this letter was written you had not had time to get any verification of the December report?

Mr. OLMSTED. I am not sure when the Census Bureau final report was issued showing the quantity of the crop, but I think it was about that time.

The CHAIRMAN. I think that is the point which you wanted to bring out.

Mr. LOVERING. When do you revise your estimate of the acreage? You make one in June, you say.

Mr. OLMSTED. I shall revise the estimate made in last June, if I can get data to revise it on, this coming June. I will not make any more estimates on cotton; we are through with cotton.

Mr. LOVERING. Not intermediately?

Mr. OLMSTED. No. I was not in charge of the Bureau; I was not chief of the Bureau then.

Mr. LOVERING. I mean during the last year.

Mr. OLMSTED. I have been since June 16, but that estimate was made before I came in. That was made on June 3.

Mr. LOVERING. When you made your estimate as to the quantity of cotton in December, was that based on your estimate of acreage made in June, or did you include the factor of abandoned acreage?

Mr. OLMSTED. We considered all those things, Mr. Lovering; but we also considered what I regard as a very helpful source of information, and a reliable one—the census ginner's reports made up to that time.

Mr. LOVERING. Oh, unquestionably.

Mr. OLMSTED. Yes, sir; I considered all those things together.

Mr. LOVERING. Since you have made use of the ginner's reports I think you have not had much complaint.

Mr. OLMSTED. Well, I have made considerable use of them this year. I think there has not been much complaint, either. It is a great help to us.

The CHAIRMAN. What is that?

Mr. LOVERING. Since he has made use of the Census Bureau report of the ginning I think there has been very little or no complaint from manufacturers.

Mr. OLMSTED. Yes; I have not had any at all.

Mr. LOVERING. As to the December estimate of the quantity of cotton?

Mr. OLMSTED. I have not had a single complaint. I have had nothing but commendation. I have received many compliments.

Mr. LOVERING. There have been none made in the House here, either?

Mr. OLMSTED. None whatever.

Mr. LOVERING. The motion that was made in the House either to suspend or to make another estimate was prior to that time?

Mr. OLMSTED. Yes, sir.

Mr. LOVERING. And none has been made since?

Mr. OLMSTED. None since; no, sir.

Mr. LOVERING. I think that is correct, Mr. Chairman.

The CHAIRMAN. I was going to say that, as I understand it, from your point of view there has been a very pronounced improvement?

Mr. OLMSTED. Oh, undoubtedly.

The CHAIRMAN. In the matter of reaching these results?

Mr. OLMSTED. Oh, undoubtedly. We feel that way; we are confident about it.

The CHAIRMAN. And so far as your Department is advised, you have not received anything but approval?

Mr. OLMSTED. Oh, yes; we have received some criticism. When I put out my December estimate, for instance, it was bitterly denounced by officials of the Southern Cotton Growers' Association and by some people who were interested in a high price for cotton. They said it was too big; that I had overestimated the crop tremendously, and all that sort of thing. I did not pay much attention to them, because I knew what our estimate was based on; that it was based on better data than we had ever had before, because we had the Census Bureau figures that I had used in connection with all my other information. I had more information than any ten private agencies or any fifty private agencies in the country, and I knew that so far as the available information was concerned my estimate was bound to be pretty near right; it could not help it.

The CHAIRMAN. And it so developed?

Mr. OLMSTED. Yes; it has so developed up to this time, so far as we now know. We will not know the exact facts until next March or April, because the final report of the Census Bureau will not be issued until then; but when it is issued it will prove whether our estimate is anywhere near the fact, and I think it will be, so far as it ever has been. What do you think about it, Mr. Lovering?

Mr. LOVERING. Oh, I quite agree with you. The only matter I have any doubt about is this matter of publishing the condition of the crop. The unit that you adopt is an unsatisfactory basis.

Mr. OLMSTED. That is the scientific basis that has been recognized by statisticians all over the country,

Mr. LOVERING. It is absolutely unscientific, however. Do you not think so?

Mr. OLMSTED. Oh, it is absolutely scientific. I think it is the most scientific basis we could possibly have adopted. It is the result of many years of experience and testing on the part of the ablest statisticians of the world, and has been tried out, and there is no system that will supplant it.

Mr. LOVERING. You have to determine what the normal crop is?

Mr. OLMSTED. Yes; the normal crop is what would be the full crop in any particular given section; and every man in that section knows that who produces that crop, and he reports on that basis.

Mr. LOVERING. What would you say, for instance, in Texas, was the normal crop?

Mr. OLMSTED. It would depend on the different sections. One section of Texas—

Mr. LOVERING. In southern Texas, say?

Mr. OLMSTED. It produces in some sections a bale to the acre, I am told, while in other sections it will only produce from seven-eighths to three-quarters of a bale an acre. In another section of the country the farmer expects, if he has good luck, to make half a bale to an acre.

Mr. LOVERING. Would you say that the whole of Texas would average 200 pounds to the acre?

Mr. OLMSTED. I think somewhere about that, sir; but——

Mr. LOVERING. You have got to have some figure.

Mr. OLMSTED. The man who makes the report, the Texas farmer, has a figure in his mind as to what a full crop is for the section that he reports for.

The CHAIRMAN. Of course the ultimate accuracy of your result depends upon whether or not that individual, who has in his own mind an arbitrary standard——

Mr. OLMSTED. Whether he reports honestly or not.

The CHAIRMAN (continuing). Is correct about that standard?

Mr. OLMSTED. That is it.

The CHAIRMAN. So that, in the last analysis, the whole thing depends upon the correct judgment of the individual who starts out to make the estimate?

Mr. OLMSTED. Exactly so; and I want to say right there——

The CHAIRMAN. And of course you can not know what that is—that is, you do not know, under your system?

Mr. OLMSTED. That is true.

The CHAIRMAN. You assume——

Mr. OLMSTED. We assume that he knows.

The CHAIRMAN. Yes. When you ask Mr. Jones for information along that line, you assume that Mr. Jones assumes the correct arbitrary sum as his normal basis?

Mr. OLMSTED. Yes; and I want to say right there that “the proof of the pudding is in the eating.” By taking these condition reports from year to year and comparing them with the average condition for the same month for a series of years, say for ten years, we find that by applying a very simple formula we can work out what the whole crop will be. We have done it time and again, and it always works out right; so it shows that these condition figures are approximately correct from month to month. That whole thing was thrashed out before the Agricultural Committee.

The CHAIRMAN. That is, your idea is that they can take the figures collected by this Bureau together, year after year——

Mr. OLMSTED. Taking one year with another.

The CHAIRMAN (continuing). And work out the result on the basis of these percentages?

Mr. OLMSTED. For ten years.

The CHAIRMAN. For ten years. So that you get back to the original arbitrary basis upon which these men have made their estimates?

Mr. OLMSTED. Yes. And we can work out from that a forecast of the crop that proves to be almost exactly accurate for every crop.

The CHAIRMAN. And its result is so approximately correct that it satisfies you that the original arbitrary normal standard assumed by these men has been substantially accurate?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. That is the proposition?

Mr. OLMSTED. Yes, sir; and if Mr. Hyde and my predecessors had made their estimates in definite units there would not have been a variation in any year exceeding 5 per cent, and usually less than 2 per cent, and for some years one-half of 1 per cent, and for a series of years seven-tenths of 1 per cent variation on the average. That shows how accurate this is. It shows how accurate it is for a series of years, taking them by and large, one year with another, and if that system that I have now inaugurated is kept up by my successors, in ten years from now they will have a basis that will be——

Mr. LOVERING. Still, whether it is a correct basis or not, the relative comparison of one year with another——

Mr. OLMSTED. Is of value.

Mr. LOVERING. No matter what the basis is, it is of value?

Mr. OLMSTED. Yes; that is, whether it compares with last year, ten years ago, or not.

Mr. LOVERING. It is taken into consideration both by the cotton exchanges in New York and New Orleans and by manufacturers?

Mr. OLMSTED. Yes, sir; that is what I said a while ago.

Mr. LOVERING. Whether it is right or wrong. I think it is wrong, but at the same time it depends.

The CHAIRMAN. That is, you think that there is an element of uncertainty about it?

Mr. LOVERING. I think that there is an element of uncertainty in establishing the basis, because here they say that a certain section, under certain conditions, should produce so much cotton per acre. Then they go on and they use fertilizer on that section and boom up the production to the extent of 20 or 30 pounds per acre. Now, you say that is the normal crop; I say, what is the normal crop?

Mr. OLMSTED. Every man who reports is supposed to know what a normal crop in his locality is, and he reports on that basis. In certain sections of Texas they make a bale of cotton to the acre. They do it right along.

Mr. LOVERING. Oh, yes; some of them make two bales.

Mr. OLMSTED. One of our correspondents in Texas, in a certain month, when the crop is half developed, will say to himself, "By George, the indications are, from my best judgment, that I will not make over three-quarters of a crop this year," and he will report the condition as 75. That is a plain proposition, is it not? Perfectly plain. That is the way with every man who reports to us, and I say, taking these reports year by year and month by month, and comparing them and analyzing them, and applying a formula to them that is very simple, we have found them to be substantially accurate—as accurate as anything of that sort in the nature of things can be.

Mr. LOVERING. They are valuable, Mr. Olmsted?

Mr. OLMSTED. Very valuable, yes.

Mr. LOVERING. But I can never agree that they are accurate.

Mr. OLMSTED. Well, that is a matter of opinion, of course, Mr. Lovering. Nothing that is labeled an estimate is expected to be exactly accurate.

Mr. LOVERING. That is the basis of all I am saying.

Mr. OLMSTED. We are making an estimate, sir. We are not a census bureau. We have not the money to take censuses with.

(Witnesses: Olmsted, Lovering, Zappone.)

Mr. LOVERING. It is an aggregate of guesses.

Mr. OLMSTED. It is an aggregate of the consensus of opinion of thousands of people—thousands upon thousands—reporting independently, and we make estimates that I believe are more accurate than any other estimates made in any other way could possibly be. I think they are strictly scientific estimates. They are something more than mere estimates.

Mr. LOVERING. So long as they stick to it, I do not care how they get their original formula. I have only been trying to get at how they got their original basis, their unit, or one of their units, and I have never yet been able to understand it.

Mr. OLMSTED. You understand now how we make the final estimates, do you not? Do you not think that is proper?

Mr. LOVERING. Oh, yes.

The CHAIRMAN. It seems that pretty radical changes in the line of improvement have been made at the Bureau within the last year or so.

Mr. OLMSTED. I think that I have improved it very greatly, Mr. Littlefield.

The CHAIRMAN. I know nothing about the subject, but I think that I can appreciate the force of the explanation. I think that is true.

Mr. ZAPPONE. Mr. Chairman, I want to substantiate that.

The CHAIRMAN. I want to say just here that there are quite a number of cotton manufacturers in my district, and I received a letter from A. D. Barker, agent of the Abell Manufacturing Company, of Lewiston, approving the continuation of the reports. This was in April, 1906.

Mr. OLMSTED. Yes.

The CHAIRMAN. And one from Mr. Bean, representing the Androscoggin mills of Lewiston, disapproving it; and another one from Mr. R. W. Wheaton, representing the Cabot Manufacturing Company of Brunswick, also disapproving it, and that is all the correspondence I have.

Mr. OLMSTED. I want to say to you (and Mr. Lovering will bear me out in this) that the New England Association of Cotton Manufacturers, in their annual meeting, had a report from Mr. McColl, in which he indorsed the reports, and I think the association itself did—did it not?

Mr. LOVERING. Yes.

Mr. OLMSTED. And wanted a continuance of them, and that represents the body of cotton manufacturers in the country better than any letters can.

Mr. LOVERING. They did not do it unanimously.

Mr. OLMSTED. No; but it was done by the convention as a body, and it went on record, and Mr. McColl sent me a copy of those proceedings, and also of his address, in which he indorsed them, and said that the estimates were as close as could be expected.

Mr. LOVERING. I think they are valuable and comparatively satisfactory.

Mr. OLMSTED. I am very much gratified to hear you say so, Mr. Lovering; I am, indeed.

Mr. LOVERING. Do you know what the Census Bureau expends on this cotton business?

Mr. OLMSTED. No. I think their appropriation is in the neighborhood of something over \$200,000. The appropriation will show, right away.

Mr. LOVERING. For what?

Mr. OLMSTED. For cotton alone; for getting the ginning statistics.

Mr. LOVERING. For cotton alone?

Mr. OLMSTED. Yes, sir. That is more than our entire appropriation for the Bureau for corn, wheat, oats, and everything. They have to enumerate it, and naturally they have to pay people to collect this information.

The CHAIRMAN. You have in your Bureau four classes of clerks, ranging all the way from \$1,000 a year up to \$1,600, I think it is?

Mr. OLMSTED. We have more than that. We have them up to \$1,800. We have them from \$720 up to \$1,800—all the grades except \$900.

The CHAIRMAN. Beginning at \$900?

Mr. OLMSTED. We have some at \$720, I believe, and some at \$600.

The CHAIRMAN. You begin at \$600 and run up to \$1,800?

Mr. OLMSTED. In the classified service; yes, sir.

(The further examination of this witness was thereupon temporarily suspended.)

STATEMENT OF VICTOR H. OLMSTED, ESQ.—Resumed.

The CHAIRMAN. Mr. Olmsted, what is the distinction between the services performed by these various clerks?

Mr. OLMSTED. Our Bureau is like every other bureau of the Government; we have all sorts of work to do, from addressing envelopes and packing up supplies to put into the mail to the most complicated, difficult kinds of computation. We have files to keep and supplies to deal out and all the multifarious little details that pertain to bureau work.

The CHAIRMAN. What I wanted to get is this, Mr. Olmsted, and you can give me the information in very short order. For instance, here is a \$600 clerk and then a \$720 clerk and so on up.

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. What I want to know is the different kinds of work that these different clerks do, if there is any difference in the kind of work. If they are all employed about the same business and doing in a general way the same work, I want to know that. On the other hand, if a \$600 clerk does a certain kind of work, a \$720 clerk a different kind of work, and so on, I would like to have you describe that; and if it is a fact that the increases in salary are substantially for the purpose of holding out to men entering the service an inducement to enter it and continue in it, in order to later on get a larger compensation, I would like to know that. Do I make that perfectly clear?

Mr. OLMSTED. Perfectly clear; yes, sir. I understand that.

The CHAIRMAN. And without going into too much detail I would like to have you differentiate between the various classes, beginning

(Witness: Olmsted.)

with the \$600 class, so that I can see, right on the record, why it is that one man is getting more salary than another.

Mr. OLMSTED. Yes. To begin with our lowest-paid clerks, we have some few typewriters who are not stenographers, but who are operators on the machine and who get \$600 a year. They are not very good ones. Then we have envelopes to address, thousands of them; some \$600 people do that, and some \$720 people do the same work. Then we have a little higher-grade work to do. We have some copying to do; we have some tabulations to make; we have computations to make. It frequently happens that a clerk drawing a certain salary will be doing the same kind of work that another clerk drawing a higher salary will do, so that a clerk getting, say, \$1,200 may do substantially the same kind of work that a clerk getting \$1,400 or \$1,600 may do.

The CHAIRMAN. And will they be producing the same results?

Mr. OLMSTED. The same results in the end; but in point of fact there is a difference in the efficiency of those clerks. One clerk is better than another at the same kind of work. No two people are exactly of the same efficiency and worth the same amount of money. These different grades were established originally, I suppose, for the purpose of differentiating between the efficiency of the different clerks and also, as you suggested a while ago, to hold out inducements to people getting lower salaries to work hard and do efficient work, so that they could hope for an advancement. The matter of seniority also enters into it. Where two clerks are equally efficient, the age of the clerk—not only seniority of employment, but age and experience—all enter into this proposition. Two men may both be tabulators, side by side, and one may be a much more efficient tabulator than the other one.

The CHAIRMAN. If he can produce better results, of course he is entitled to more compensation.

Mr. OLMSTED. He is entitled to more pay, of course. Congress appropriates a certain amount of money for a certain number of clerks of a certain class and another amount of money for so many clerks in another class. We endeavor in adjusting those salaries and making promotions to recognize merit. When a vacancy occurs in a higher grade we will select the best clerk in the next lowest grade, so far as we can—the person who is the most efficient, who is the most attentive to his duties, who comes the most regularly, who has proved himself to be the most dependable clerk. We will give him the promotion. He is entitled to it.

The CHAIRMAN. In other words—that is, the clerk that renders the most valuable service to the Government for the compensation received?

Mr. OLMSTED. That is the idea.

The CHAIRMAN. What is the predominating feature in the fixing of these grades and in the promotion of these clerks? Is it the incentive to enter the service with the expectation of getting a larger salary, or is the predominating feature the efficiency of the work and the results actually accruing to the United States?

Mr. OLMSTED. I think the predominating feature is the experience and efficiency of the clerks. Secondly, this system is holding out to the clerks all the time the possibility of promotion if they are efficient

(Witness: Olmsted.)

and prove themselves worthy of promotion. But the predominating factor in making promotions and in advancing one clerk from a low grade to a higher grade is his efficiency as compared with other clerks receiving the same salary—his experience, his attention to duty; all those things that go to make up a reliable, dependable employee.

We may have two men getting exactly the same salary, of equal tenure of office. One man may be a very bright man, a very good man, a very rapid clerk, and the other man may be dull and stupid and inefficient. When an opportunity comes to advance one of them, by the death or resignation of some clerk in the next higher grade, we would promote to that vacancy the valuable clerk, the man who renders the greater service, because he is worth more money.

The CHAIRMAN. You promote him because he can earn more?

Mr. OLMSTED. Because he can earn more and because he is of more value to the office and is worth more.

The CHAIRMAN. Of course that determines his value?

Mr. OLMSTED. Certainly.

The CHAIRMAN. Do you have any trouble in getting clerks for your Department?

Mr. OLMSTED. We never have had since I have been in charge there. Whenever a vacancy occurs we promote to the higher place from the lower ranks and call on the Civil Service Commission for a clerk to fill the lower grade office.

The CHAIRMAN. You mean since you have been there—since 1905?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. Would that go back to April, 1904?

Mr. OLMSTED. I presume my predecessors did the same thing. I do not think they always did. I think that Mr. Hyde's policy was sometimes, when a vacancy occurred, without promoting anyone in the office, to bring "new blood," as he called it, into the office; to bring in inexperienced men and train them in the work and give them higher salaries over the heads of people who had been there and had learned the work. He did that sometimes with new men. I know he did that with me.

The CHAIRMAN. That would go to contraindicate that policy, would it not?

Mr. OLMSTED. He did not always do that. He did that when he got hold of a man that he thought would be a particular acquisition to the office; and I think he was justified in doing it. I am a little selfish in that, I expect, because when I came back from the Hawaiian Islands (I made an investigation of the labor conditions in the Hawaiian Islands) and was appointed to the office of Assistant Statistician there were men in the office who aspired to that position; but Mr. Hyde offered me the position. I was getting \$2,000 a year in another Bureau. Mr. Hyde came to me and offered me that position as Assistant Statistician, statistics having been my life business. He offered me that position and I accepted it. He went outside of the office and brought in a new man (myself) for that work, and gave me a position that ordinarily might have been filled by promotion in the office.

The CHAIRMAN. At what salary?

Mr. OLMSTED. At \$2,200.

(Witness: Olmsted.)

The CHAIRMAN. Then, so far as your observation goes, there is no difficulty in your own Department in getting appointees from the civil-service examinations?

Mr. OLMSTED. So far. In fact, I will say that the people I have secured from the Civil Service Commission have been very valuable people so far. I have had no trouble at all either in getting the people or in finding them satisfactory when secured.

The CHAIRMAN. Have you any knowledge as to how many eligibles there now are?

Mr. OLMSTED. No, sir; I have not.

The CHAIRMAN. Or how many there may be on the waiting list?

Mr. OLMSTED. I have not any idea at all.

The CHAIRMAN. How do these salaries that you pay compare with the salaries that are paid in employments of a like character in private life, if there are any private employments with which your Bureau can be properly compared?

Mr. OLMSTED. I think that our higher grade, higher paid clerks, who are engaged in very important computations and calculations, could probably, if they had the opportunity, if a position were open, earn more salary in similar work outside than they can in the office. For instance, we lose men every once in a while who have been offered higher salaries. I have been offered higher salaries myself. One of our experts there, who was receiving \$1,800 in our office, was given a position in New York at \$4,000 to do exactly the same kind of work. Another man that we had employed in field work was offered a higher salary outside, and accepted it. We have that hanging over us all the time. When we get a good man, and have him trained well, somebody outside finds out about him and offers him inducements to leave us.

The CHAIRMAN. Where did these two particular people happen to go?

Mr. OLMSTED. They were offered an opportunity to make more money.

The CHAIRMAN. In what employment?

Mr. OLMSTED. In some statistical work; I do not know just what.

The CHAIRMAN. Private work?

Mr. OLMSTED. Private work. I can myself, at any moment, get a much higher salary than I am receiving now, in statistical work.

The CHAIRMAN. And your salary now is what?

Mr. OLMSTED. Three thousand five hundred dollars. I will tell you why that is. The statisticians of the country are few and far between, and a man who is trained in statistics is in demand. I have found that out in my own experience. I have been in demand many times.

The CHAIRMAN. You mean a man who is trained in statistics—not only a man who can put statistics together, I suppose, but who can analyze them?

Mr. OLMSTED. Analyze them and compare them and correlate them.

The CHAIRMAN. And get results that the average man can appreciate?

Mr. OLMSTED. Yes. There are only a few of us in the country. You can count them on your two hands.

(Witness: Olmsted.)

The CHAIRMAN. I do not suppose that statistics are of very much value, if they are gathered together in a big mass, without any analysis?

Mr. OLMSTED. No; they are of no value at all.

The CHAIRMAN. I want to inquire about a few of these men, as to their particular duties.

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. Here you have an editorial assistant at \$2,300.

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. What duties does he discharge?

Mr. OLMSTED. That is a gentleman named Daugherty. We publish every month in the Bureau a little paper, which you receive a copy of, I suppose, called the Crop Reporter. About two or three years ago it was found that that Crop Reporter, the way it was managed under Mr. Hyde's administration, was not satisfactory. Mr. Hyde could not give it personal attention, and it was not edited properly. The material that was printed in it did not go in in proper shape, and it was not properly arranged, and so on. So Mr. Hyde had Mr. Daugherty, who is a very finished gentleman, an educated, cultured gentleman, and a fine statistician, a very able man, appointed as editorial assistant for the purpose of supervising the publication of the Crop Reporter, which he did, and established the Crop Reporter on a very excellent basis. He rearranged things and superintended the material that went into it and edited it and laid plans for its future publication, so that it became really more valuable than it had been before; very much more readable and much more in demand, so that the editions had to be enormously increased to supply the demand for it.

Mr. Daugherty continued in that office, and still continues in it; but we publish in the Crop Reporter reports of the European crop conditions, and we had an agent in Europe collecting that information, whose reports were not satisfactory either to the Department or to Mr. Daugherty, as editorial assistant. They did not come in good shape, and we frequently found that they were wrong, and we did not know his basis of information. So Mr. Hyde, just before I came back there, say about two years ago, decided, as Mr. Daugherty constantly complained of that feature of the Crop Reporter, to send him to Europe himself to lay proper plans and get in touch with proper sources of information, so that that material for the Crop Reporter, which is vastly important and which occupies a large space every month, should come to us in proper form and in reliable shape. Mr. Daugherty was, therefore, sent abroad for that purpose. He has been collecting information and preparing it for the Crop Reporter and laying a basis for the collection of future information—all for the Crop Reporter, nothing else, of which he is editorial assistant. I do not know how long he has been there now; nearly two years, I believe.

The CHAIRMAN. He is away now?

Mr. OLMSTED. He is away now; but I shall bring him back. I have already spoken to the Secretary about it, and in a month or two from now I propose to bring him back to America, because he has the ground so well prepared, from all I can judge from his letters and the reports that I have seen, that I can send another

(Witness: Olmsted.)

man over there to do that work now at a lower salary, and bring him back and use him in my office. He is too valuable a man; I do not want to spare him any longer, and I will bring him back and put him in charge of this work here again. He is an extremely valuable man.

The CHAIRMAN. What are the duties of these assistant chiefs of the Bureau? Here is Mr. Stephen D. Fessenden and Mr. C. C. Clark.

Mr. OLMSTED. What was Mr. Fessenden's designation at that time?

The CHAIRMAN. Assistant chief of the Bureau.

Mr. OLMSTED. He was assistant chief; he is no longer assistant chief. Mr. Fessenden at that time was assistant chief of the Bureau, but he is now a special field agent.

The CHAIRMAN. Mr. Fessenden?

Mr. OLMSTED. Yes; he is from New England. He is a member of the famous Fessenden family; his uncle was Secretary of the Treasury, and Senator Frye, from your State, and Senator Hale—

The CHAIRMAN. What work is he engaged in now?

Mr. OLMSTED. He is engaged in collecting agricultural statistics in the New England States for the Bureau, and he was appointed special field agent. He is no longer assistant chief. Dr. C. C. Clark, who was formerly chief clerk, is now the assistant chief of the Bureau and has been promoted to fill his position.

The CHAIRMAN. The tabulated expenditures under your Department, found on pages 261, 262, and 263, with the exception of those at the bottom of the page, relate to expenditures in the city of Washington, I suppose. Do they not?

Mr. OLMSTED. No; the heading of the table is "Statutory salaries, traveling expenses, and station and field expenses." That would include also expenses outside of Washington—"traveling expenses and station and field expenses."

The CHAIRMAN. Yes; but they relate to your force in Washington?

Mr. OLMSTED. Not the traveling expenses; not necessarily. They would be traveling expenses of people outside of Washington.

The CHAIRMAN. But are not the expenditures set out on pages 261, 262, and 263 practically all confined to your force in Washington except so far as they are traveling expenses which would be incurred if a Washington man traveled outside?

Mr. OLMSTED. I judge that they are, from the names of the clerks down here and the designations.

The CHAIRMAN. Now, take the tabulation headed "Outside of Washington," beginning at the bottom of 263 and going over to 264 and 265.

Mr. OLMSTED. Yes.

The CHAIRMAN. That is your force outside of Washington?

Mr. OLMSTED. Yes; it is. That is right.

The CHAIRMAN. Are these special field agents and special agents that you have here men that are employed in the collection of statistics in a general way in the manner you have already described?

Mr. OLMSTED. Yes, sir; they are.

The CHAIRMAN. That is, in the field and getting in personal touch with the conditions they are looking for?

Mr. OLMSTED. Yes, sir.

(Witness: Olmsted.)

The CHAIRMAN. And not necessarily all confined to the cotton crop?

Mr. OLMSTED. Oh, all crops.

The CHAIRMAN. But all matters involved in the collection of agricultural statistics?

Mr. OLMSTED. Yes, sir; that is correct.

The CHAIRMAN. Of the general character to which you have called attention?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. What is done with the work of all these field inspectors, special field agents, and special agents that are in the field, and with the statistics that are collected by the Bureau from the correspondents of the Department? What do you do with the results of the work of these individual men?

Mr. OLMSTED. As I have already explained, I think, these men report to us every month.

The CHAIRMAN. You have explained that in connection with the cotton.

Mr. OLMSTED. Exactly the same method of procedure is followed in other crops.

The CHAIRMAN. Are we to understand that in case of all the subjects that you investigate you take the results of the work of these men who make the investigation, and of the correspondence that you engage in in connection with that subject, and then tabulate and analyze them so that you get a concrete result?

Mr. OLMSTED. That is the idea.

The CHAIRMAN. Which can be compared with the results from year to year?

Mr. OLMSTED. Exactly so.

The CHAIRMAN. So that whoever has occasion to investigate the work of your Bureau, or get information therefrom, can get, at stated periods, from time to time, the concrete, analyzed result of your work?

Mr. OLMSTED. You have stated that exactly as it is. We deal with all the crops in just exactly the same way that we do with cotton. The reports of these various agencies, voluntary and salaried, are brought together in parallel columns for each quarter or each month.

The CHAIRMAN. And if any gentleman desirous of obtaining information in relation to any particular crop as to which you collect information writes your Bureau, you have certain periods as to which you could give him concretely, by turning right to your records, the result in connection with that particular subject?

Mr. OLMSTED. Yes, sir; we can do it, and we can do it very conveniently, for the reason that we keep it in print. We publish it in printed form in the Crop Reporter in parallel columns, month by month, for all these crops, and that is on file.

The CHAIRMAN. And is the Crop Reporter the medium through which you get to the public the result of the work of your Bureau?

Mr. OLMSTED. That is one medium.

The CHAIRMAN. What other mediums do you have?

Mr. OLMSTED. As rapidly as we make these estimates we furnish mimeograph copies to the principal newspapers of the country, and we send them all out the same day, and they are published in the press all over the country. They are so important that the telegraph

(Witness: Olmsted.)

systems of the country hold their wires open for a few minutes—both the Postal and the Western Union— and refuse all commercial business or any business of any other kind until these reports can be transmitted to the press of the country. We give them out to the Associated Press and to the United Press, and to the representatives of other press associations, and also send by mail, the same evening, mimeograph copies of the estimate to the principal papers of the country.

The CHAIRMAN. Do you make daily reports?

Mr. OLMSTED. Oh, no; monthly reports.

The CHAIRMAN. Monthly reports?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. So that when you do get around to your monthly reports those go not only by these mimeograph copies, but go by telegraph to the important papers of the country?

Mr. OLMSTED. Yes, sir; through the press associations.

The CHAIRMAN. And they become part of the news of the Associated Press?

Mr. OLMSTED. They do, and of the United Press; and in addition to that we publish them in the Crop Reporter from month to month, and publish them in comparison with similar figures for the same month in previous years.

The CHAIRMAN. Are there any other documents or pamphlets issued by your Bureau?

Mr. OLMSTED. Yes, sir. Every year we prepare for the yearbook, with which you are familiar, what is called a statistical appendix, in which all of the figures for each different crop are brought together and placed in comparison with the figures for previous years, so that anyone can look at them. We have that appendix published separately also, as well as bound in the report, so that in answering people seeking information along the lines of our work we can just send them a marked copy of the appendix to the yearbook, not only for this year, but for a series of years.

The CHAIRMAN. Is that a summary or collection of the information you have been sending out monthly?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. All collected in one table?

Mr. OLMSTED. All collected in one table, for the current year and preceding years. Then we issue bulletins on various subjects from time to time. My annual report there shows what we prepared last year in the way of special bulletins, etc.

The CHAIRMAN. Those are pamphlets or leaflets?

Mr. OLMSTED. Pamphlets or leaflets; always less than a hundred pages. Here they are. They are the things that are outside of our regular crop-reporting work. Those are the things we have issued during the year. [Referring to printed documents.]

The CHAIRMAN. Are the publications which you refer to in your report as numbers 35, 36, 37, and up to 47, inclusive, bound publications or pamphlet publications?

Mr. OLMSTED. No, sir; they are not bound. They are pamphlet publications.

The CHAIRMAN. Bulletins such as you have just described?

Mr. OLMSTED. Bulletins; yes, sir.

(Witness: Olmsted.)

The CHAIRMAN. And they include all that you have issued during the year?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. And under what circumstances do you issue bulletins? After you have accumulated a sufficient amount of information that you think will be valuable?

Mr. OLMSTED. That is the idea.

The CHAIRMAN. Then you issue a bulletin?

Mr. OLMSTED. Then we boil it down, analyze it, tabulate it, and put it in the form of a bulletin, in such shape that the public can digest it.

The CHAIRMAN. Who has charge of the preparation of that bulletin?

Mr. OLMSTED. It depends on the particular person it is assigned to.

The CHAIRMAN. Each division?

Mr. OLMSTED. The Division of Foreign Markets prepares a bulletin—I am preparing one now. I am right in the midst of a very valuable bulletin, which we will publish as soon as we can get the information all together, on the wages of farm labor throughout the United States. We have done that every year for a series of years. We place the wages paid this year in comparison with the wages paid three years ago, six years ago, and nine years ago, showing the increase.

The CHAIRMAN. Do you make an analysis of those wages?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. And is that made by States, or is it the country over?

Mr. OLMSTED. That is made by States, showing each State.

The CHAIRMAN. So that will give the rate of farm wages in a particular State?

Mr. OLMSTED. Yes, sir; and be—

The CHAIRMAN. And be in concrete shape?

Mr. OLMSTED. In concrete shape, and will show the wages paid, with board and without board, and whether they are daily wages or whether monthly wages. All the different conditions under which wages are paid will be separated and analyzed, so that anyone can find out from them what rates of wages are paid for all these different classes.

The CHAIRMAN. Under all circumstances?

Mr. OLMSTED. Under all circumstances.

The CHAIRMAN. And that extends over, and you have compared that with the period of—

Mr. OLMSTED. A period of three years, and a period of six years, and a period of nine years, ago.

The CHAIRMAN. At stated intervals?

Mr. OLMSTED. At stated intervals; yes, sir. We give the number of hours where it is possible. Farm laborers, as a rule, do not work any stated number of hours, but where they do we state it. If they do work a stated number of hours we state it.

The CHAIRMAN. How large an edition do you make of these bulletins?

Mr. OLMSTED. Generally between 4,000 and 5,000 copies; and then, if there is a demand for it, we reprint the bulletins. Sometimes there is such a demand for these things that we have to have reprints.

(Witness: Olmsted.)

After we have prepared the bulletin and sent it to the Division of Publications, it passes out of our hands, of course. That is under the Secretary's direct supervision, as I understand it. He has a man in charge of the Division of Publications. These publications, of course, are sent voluntarily to our correspondents. We, of course, want to supply the people who have furnished us information; we want to send them the concrete results of what they have done. Then, if the demand is great, it may exhaust the edition, and we have to reprint them. We sometimes have to make several reprints. Sometimes a great many reprints are made of bulletins.

The CHAIRMAN. That is for the purpose of answering any legitimate demand that may be made therefor?

Mr. OLMSTED. Yes, sir.

The CHAIRMAN. Then do you publish, as a rule, as I understand it, the minimum number?

Mr. OLMSTED. Always the minimum number.

The CHAIRMAN. Subject to increase of editions as the public demand may develop?

Mr. OLMSTED. That is the idea exactly. We do not want to print a lot of them and have them left on our hands. We do not have any accumulation of bulletins there. We always get rid of all of them and frequently have to reprint several times.

The CHAIRMAN. How many did you say? What is the size of your edition of the Crop Reporter?

Mr. OLMSTED. One hundred and fifteen thousand a month now. Last month the edition was 120,000.

The CHAIRMAN. To whom is that sent?

Mr. OLMSTED. It is sent, in the first place, to all of our voluntary correspondents—that is, to all that want it. That is one of the ways we pay them. They indicate whether they want it or not. We send a copy to each one of them that wants it; we send every Member of Congress a copy; we send it to agricultural associations and to agricultural newspapers. We send it to anyone interested in agriculture that will ask for it—there is no charge for it—and the libraries of the country get it and keep it on file. They are very anxious to have it, and we send it to them.

The CHAIRMAN. Is the demand for it increasing?

Mr. OLMSTED. Oh, it is increasing regularly. It is constantly growing. We have had to increase the edition several times in recent years. The requisition I signed the other day for the present edition is for 120,000 copies. That is the largest number we have ever published.

The CHAIRMAN. And that is on the basis of an actual, existing demand therefor?

Mr. OLMSTED. An actual, existing demand, except for about 100 or 200 copies that we keep on file and have bound afterwards for a permanent record.

The CHAIRMAN. Yes; certainly. Now, what have you to say generally, Mr. Olmsted, with reference to the commercial and material utility of your Bureau—the manner in which it produces results that are valuable, concretely, to the country from a commercial and industrial standpoint?

Mr. OLMSTED. Outside of the special studies that we are engaged in, the results of which are published in the form of bulletins, the

most important work of my Bureau is the making of crop estimates. That uses up practically three-fourths of my appropriation and is of the most vital present importance at all times. The reason it is of importance is this: There is a demand on the part of producers of, dealers in, and consumers of agricultural products to know approximately the volume of the crop in which they are interested. The farmer wants to know because he wants to know whether he shall sell his crop or hold it. The dealer wants to know because he wants to know how much to offer for what he purchases, and how much to charge for what he has to sell. The consumer wants to know for similar reasons. So that there is a constant and insistent demand for statistics of production, of acreage, and of prospects of the various crops.

The CHAIRMAN. For which is the demand most insistent?

Mr. OLMSTED. It all leads up to one thing and that is the production, of course.

The CHAIRMAN. Yes.

Mr. OLMSTED. Everything leads to that.

The CHAIRMAN. But for which particular crop is the demand the most insistent?

Mr. OLMSTED. Oh, I can hardly say. I believe there is more fuss made, if I may use the term, about the cotton estimates, than any others. The estimates we make regarding wheat and corn and oats, which are strictly speculative crops, dealt in in the "pits," you know, in Chicago and New York—

The CHAIRMAN. Tobacco?

Mr. OLMSTED. Yes; tobacco. That is not speculative; that is not dealt with in as speculative a way as those other products are, but, nevertheless, it is a very important crop. The demand for information regarding those things is constant and pressing.

The CHAIRMAN. That is, these that you term speculative in the sense that they are of immense value and are dealt in on a speculative basis?

Mr. OLMSTED. In the sense that the gamblers handle them in the "pits" and sell them on futures and margins.

The CHAIRMAN. That is mainly cotton, corn, wheat, and oats?

Mr. OLMSTED. They are the principal speculative crops. Others are dealt in to some extent, but they are the great speculative crops, and they are the ones we have to be particularly careful about, in guarding against any leakage of advance information that some speculators might take advantage of. The value of our estimates of those things is that it supplies a gap, year by year, that otherwise would remain unfilled. There would be no way at all of getting information as to what the probable production of any crop would be if we did not make these estimates, except such estimates as might be put out by speculators and their agents for purely selfish motives. The producer of the country would be at the mercy of a gang of speculators, who would make it appear that the crop was tremendously big, in order to get his product at a low price, or tremendously small, in order to sell it at a high price; and there would be no reliability to any such reports.

Our reports are issued authoritatively, on widely diversified information secured from thousands of people, and they are unbiased. The intent is not to have anyone interested in the making of these

(Witness: Olmsted.)

estimates who has any personal interest in the price, and the public is thereby furnished with approximately accurate information. Of course it is an estimate, and therefore it can not be a census, but it is approximately correct as to the volume of a crop. They want to know before the crop is harvested what the prospect is, so we furnish them during the growing season with estimates as to the condition of the growing crop—what the promise of the crop is. Those things are all eagerly sought, published in every paper of any importance in the United States, and analyzed, discussed, and used, and when our estimate appears all other estimates cease. Ours is accepted as final.

The CHAIRMAN. Where do you get your reports as to weather conditions?

Mr. OLMSTED. We get them from the Weather Bureau.

The CHAIRMAN. You do not have anybody collecting data of that kind?

Mr. OLMSTED. No; we do not get that, because the Agricultural Department does it, and we use their reports.

The CHAIRMAN. You mean the Weather Bureau does it?

Mr. OLMSTED. The Weather Bureau of the Agricultural Department does it. They collect those reports, and we take their reports and use them in making our estimates. We find them very valuable.

Mr. SAMUEL. There are no favored persons, such as Congressmen, receiving your reports in advance of others?

Mr. OLMSTED. No; they receive them at the same time others do.

Mr. SAMUEL. They are not favored?

Mr. OLMSTED. Oh, no, indeed; nobody is favored. They are all gotten out at the same time, and the wires are kept open. The telegraph operators are there, and the employees of the press agencies are there, and I have about 20 copies made of the estimate, and they are all given out at once. The Secretary comes over to my office; I hold them out like that—like a pack of cards—and they all grab for them, and all get them at once. Then the telegraph operators jump for their instruments, and the press agents jump for the telephones, and they all get it at practically the same moment. Nobody is given any advantage over anyone else in the way of advance information.

The CHAIRMAN. Are all these people that are under your supervision continuously employed in the discharge of their duties?

Mr. OLMSTED. Yes, sir; except when they are on annual leave or away on sick leave.

The CHAIRMAN. I mean is the work of such a character that it requires the clerks that are here in Washington, for instance, to be continuously employed in order to discharge the work of the Bureau and the Department?

Mr. OLMSTED. Yes, sir; and it is of such a character that very many of them are employed beyond their strength. The work of the Bureau has grown so and has developed so without a corresponding increase in force that the capacity of the clerks and other employees of my Bureau is taxed to the utmost. We need more clerks—a good many more.

The CHAIRMAN. Take, for illustration, a stenographer. What do you use a stenographer for?

(Witness: Olmsted.)

Mr. OLMSTED. Oh, we have, for instance, letters galore from all over the country asking for information. We have scores of letters every day from Members of Congress and other people who want some definite information on some one point that they do not know just where to find in our publications.

The CHAIRMAN. Yes.

Mr. OLMSTED. And they write to us for it. If it is something that we have published, we get the publication and mark a copy of it and write them a letter and send it to them, calling attention to the page on which they will find the information. If it is some information that is not published by us, but which we can dig out of the commercial papers, we will do so and send it to them. We are constantly on tap for information regarding such matters.

The CHAIRMAN. Have you any idea how many letters, for instance, a stenographer would take dictation of and transcribe?

Mr. OLMSTED. We have a record of all the letters sent. It is a very large number. We keep our stenographers very busy all the time, constantly, either on that or on other matters connected with the work, where stenographic work is required. I have ten stenographers and typewriters in my Bureau. They are not all stenographers, however; some of them are merely typewriters. I have five stenographers, and the balance of the ten are merely typewriters, and they are busy all the time—overwhelmed with work.

The CHAIRMAN. Their work is mainly taking dictation?

Mr. OLMSTED. Yes; or preparing tables. For instance, suppose you write me for information regarding some specific product for a series of years which you want to use in a speech, or want for some constituent. I will sit down and cull out the information and put it in the form of a table and give that table to the stenographer to typewrite. I could not send it to you written with a pen, because you want it in better shape than that. I will make a little table and have it typewritten for you and send it to you with a letter. We have lots of that kind of work to do.

Then we receive requests for information from foreign Governments. We have many communications to answer—scores of them. You have no idea of the immense amount of correspondence we have to handle from all over the country.

Then our regular correspondents write in for things. They write in asking favors of all sorts. We have to refuse most of them. We have no money with which to comply with them. We have to write letters to them to keep them from being angry, so that they will keep on reporting to us. We have to smooth them down. We may have a splendid correspondent in Alabama, for instance, who has been reporting to us for fifteen years, and he may say, "It is about time I was getting a salary. I have been getting too many garden seeds and documents and no money, and I am getting tired of it." I have got to write that man a letter and smooth him down and explain to him why I can not pay him. I have lots of letters of that kind to answer. You can readily see that there is no end of work.

The CHAIRMAN. Is there any distinction between your bureau and other bureaus in the Department of Agriculture with reference to eligibles waiting for appointment who have passed a civil-service examination?

(Witness: Olmsted.)

Mr. OLMSTED. Not that I am aware of. Whenever I need a new clerk I call on the civil service to designate three people, and select one of them, according to the rules of that body, and they always send them to me, and I always get a satisfactory person.

The CHAIRMAN. You never have had any difficulty, up to date, in finding one ready to enter your employ?

Mr. OLMSTED. I never had any—not the slightest—no, sir; and I have always had very satisfactory people so far. I have no criticism at all to make of the people they furnish me.

Mr. SAMUEL. You have no statement to make to amplify what you have said?

Mr. OLMSTED. No, sir; I can not think of anything more to say, if I have made myself clear. I hope I have made myself clear as to the importance and value of our work; because the importance of any work, I think, is measured by the demand for the results attained. The demand for ours is something enormous.

Mr. SAMUEL. You have no way of making an estimate in dollars and cents?

Mr. OLMSTED. No; I have not. I know that our estimate of a given crop, as to the production, serves to fix in the minds of the people interested in the crop how much it is worth—how much we will have for export. Take wheat, for instance. They take my figures of the wheat crop for the year, and they say, "The whole crop will be so much; that will leave us so much for export, so much for domestic consumption, and the price of the wheat ought to be about so and so."

The CHAIRMAN. So far as affecting the value of the product is concerned, is the value of your statistical work confined largely to half a dozen or eight or ten of the principal staples?

Mr. OLMSTED. Yes, sir; as far as affecting the value is concerned, it is; those speculative crops, particularly.

The CHAIRMAN. In what particular do we get value received in connection with the other crops, except as a matter of—

Mr. OLMSTED. As a matter of information to people interested in those crops.

The CHAIRMAN. Yes; but in what way does that operate to result in real, concrete, material value?

Mr. OLMSTED. That is difficult to answer. It might operate in many ways. For instance, the man interested in the sugar-beet crop knows that in his section, where he lives, the crop is not promising, and that he is not going to make more than half a crop this year where he lives, and he wants to know what the condition of the crop is generally throughout the country—whether that condition prevails all over the country or not. He writes to us for information about it. We compile that information, and we send it to him. The manufacturer of beet sugar wants to know the same thing. Our office is the only place where he can get that information. He can not get it anywhere else. There is no other agency collecting that information. They want to know in advance what the prospects of that crop are.

The CHAIRMAN. Beets and cane for making sugar would be almost staples.

Mr. OLMSTED. They are getting to be. Now, take another crop of less importance—take peanuts, for instance. We have a great

(Witness: Olmsted.)

many inquiries about peanuts. That is a very important industry in the section where peanuts are produced and dealt in. The handlers of peanuts want to know and the growers of peanuts want to know. For instance, Virginia is a great peanut State; so are Georgia and North Carolina. In Virginia the crops are very poor, say, and the people down in Virginia want to know how it is in North Carolina and how it is in Florida. They write to us for it. There is no other place where they can get the information. We have it here, because we have compiled it from the reports of all our correspondents, from all our sources, and we can give these people just exactly the information they want as to the quality of the crop and the prospects.

MR. SAMUEL. It gives them the information necessary to set a price on their crop?

MR. OLMSTED. To set a price or to make contracts with the farmers. It gives the farmer a chance to set a proper price on his crop. We do not confine it to a particular dealer. It is published broadcast and sent to anybody interested.

THE CHAIRMAN. Do you issue information of this kind during the month prior to your general monthly summary?

MR. OLMSTED. No; just once a month. We could not do that. You can readily see that we could not do that. This information comes in—

THE CHAIRMAN. For instance, in reply to any inquiries that may come in in June you give them the results of your work up to the 1st of June?

MR. OLMSTED. That is the idea, exactly.

THE CHAIRMAN. But what was being developed during June you would not disclose until the end of June?

MR. OLMSTED. Not until the end of June—not at all; so that everybody has the same information exactly at the same time.

THE CHAIRMAN. How do you protect the sources of your information so that you know in the first instance that it has not leaked out, and in the next that its integrity has been preserved?

MR. OLMSTED. In the first place, all the reports of our salaried people (that is, our special field agents and our State agents) regarding speculative crops (that is, crops whose price would be affected by advance information of our reports) are not sent to me at all. They are sent in specially printed envelopes addressed to the Secretary of Agriculture and are taken charge of by him, and he places them in a locked receptacle in his office. They are kept in that receptacle, unopened, until the morning of the day on which I am to formulate my estimates, and are guarded at night by an armed watchman. That is how we guard those up to that day. I do not see them at all.

MR. SAMUEL. They are unopened?

MR. OLMSTED. Unopened. He puts them in that receptacle unopened, with the seals unbroken, and he keeps them there until the morning of the day on which the report is to be issued. I do not see them at all until then.

As to the reports of the voluntary correspondents, they come to me and are tabulated, each class to itself, separately, in the States of relatively large production—all the cotton-producing States as to cotton, for instance; the separate wheat-producing States as to wheat; the separate corn-producing States as to corn; and the

(Witness: Olmsted.)

separate tobacco-producing States as to tobacco. Those schedules as they come in, county by county, are tabulated in that way until we have the States perhaps two-thirds tabulated. Then that sheet is cut right in two. The footings are made for two-thirds of the States, and then right under those footings, which are carried onto the lower half, the sheet is cut right in two, bisected, and the balance of the sheet is tabulated in another room by another set of clerks who do not know what States the sets of figures relate to. Each State is given a number. Let us say that Alabama, for instance, may be given the number 1, and the number 1 is also placed at the bottom of the sheet before it is cut in two. After it is cut in two the lower half of the sheet, with the balance of the schedules, after they have been tabulated, is taken into another room and given to another set of clerks who do not know what State it relates to at all, because the names of the counties are cut off, so that there is nothing to indicate on the bottom of the sheet the State to which the figures relate, and a different set of clerks in another room entirely complete that computation. While that is being done the first halves of the sheets are brought into our room and placed under lock and key. As the second halves are completed they are brought in also and placed under lock and key, and then, finally, in my room in my office these sheets are matched together, and in that way we can find out what States these figures relate to at the bottom of the sheet by matching the sheet numbered 1 down here with the same sheet numbered 1 up here with the name of the State appearing at the top of the sheet. So that none of the clerks who handle these sheets knows the State to which the figures at the bottom of the sheet relate.

Mr. SAMUEL. Would not the figures they add indicate what State they are from?

Mr. OLMSTED. No; they would not indicate that at all—not at all. They deal in percentages altogether. We estimate these things by percentages entirely, and there is no way under Heaven by which the clerk who makes these final computations on the sheet can find out the State to which the figures he is making relate.

The CHAIRMAN. So he has no information he can disclose?

Mr. OLMSTED. He has no information he can disclose. He does not know what the figures mean. Then, on the morning of the day when the reports are to be made, the Secretary brings them over to me or sends them over by the Assistant Secretary (generally himself personally, or else the Assistant Secretary) in a locked bag—takes them out of the safe and puts them into a locked bag—and brings them over to my room. My room is kept locked during that day, with a sign on the outside "No admission," and all telephones are disconnected, and no one is allowed to enter or emerge except by permission of the Secretary, and there those special reports from the salaried agents are opened up and tabulated and placed in parallel columns with these other figures that I have had from the voluntary correspondents. It is all done right there, that same morning, and we remain in that room and do not go out of it until we have analyzed those figures and arrived at our final estimates based on them. Then the doors are unlocked, and the Secretary comes over to my office—by the way, I do not take it to him to sign. He comes over to my office and raps on the door, and we let him in, and he

(Witnesses: Olmsted, Ruan, Zappone.)

comes in and looks it over and sees if it is all right. Sometimes he is in there all the time, if it is very important. Then he will sign the report and it is ready to be given out at a fixed hour. The Secretary and everyone remain locked in. We generally fix an hour by the clock at which we will give it out, and everybody is waiting. The press people are waiting; the Western Union and the Postal Telegraph operators are there, and there is a horde of them there, waiting for it very anxiously, because it is a matter of news that they are very anxious to get and publish all over the country. That is the way we guard and protect the integrity of the estimates and prevent any advance information being given out regarding them.

(The committee thereupon took a recess until 2 o'clock p. m.)

STATEMENT OF ADDISON T. RUAN, ESQ., DISBURSING AGENT OF PHILIPPINE REVENUES, BUREAU OF INSULAR AFFAIRS, WAR DEPARTMENT.

The witness was duly sworn by the chairman.

The CHAIRMAN. You are employed where, please?

Mr. RUAN. In the Bureau of Insular Affairs, in the War Department.

The CHAIRMAN. And in what capacity?

Mr. RUAN. I am disbursing agent of Philippine revenues.

The CHAIRMAN. How long have you been such?

Mr. RUAN. Since May 1, 1905.

The CHAIRMAN. Have you examined the accounts of the Department to ascertain out of what fund the salary of Mr. Olmsted was paid prior to the last of January, 1905?

Mr. RUAN. The salary received by Mr. Olmsted through the disbursing agent of Philippine revenues was paid from a special appropriation which the Philippine Commission made to complete the Philippine census reports. Mr. Olmsted was employed in the Philippine Islands as assistant director of the Philippine census, and with General Sanger and others came to the United States, to Washington, for the purpose of completing the reports, and there was a special appropriation placed by the Philippine government to the credit of its disbursing agent here for the purpose of paying their salaries as long as their services were required in connection with that work.

The CHAIRMAN. Then is it within your knowledge that Mr. Olmsted's salary was so paid up to the last of January, 1905, when his services in connection with that census ceased?

Mr. RUAN. According to the records of the office, it was.

The CHAIRMAN. That is, it came out of that fund, and did not come out of the funds of the United States?

Mr. RUAN. Yes, sir. I am quite certain of that—that is, that it did not come out of United States funds.

The CHAIRMAN. I think that covers all of that.

Mr. ZAPPONE. That covers it fully, Mr. Chairman, and shows that it did not come out of the funds of the United States.

WAR DEPARTMENT,
BUREAU OF INSULAR AFFAIRS,
Washington, February 4, 1907.

SIR: In response to your telephone inquiry of this date, as to salary received from the Philippine government by Mr. Victor H. Olmsted as assistant director Philippine census during the period April, 1904, to May, 1905, I have the honor to state that the records of this office show that Mr. Olmsted was paid from April 1, 1904, to January 31, 1905, at the rate of \$300 per month by Mr. James G. Jester, then disbursing agent, Philippine revenues, from funds appropriated by the Philippine Commission for expenses of the Philippine census.

Mr. Olmsted also drew salary from the Philippine government prior to April, 1904, but there is no record of any payment to him subsequent to January 31, 1905.

Very respectfully,

A. T. RUAN,
Disbursing Agent, Philippine Revenues.

HON. CHAS. E. LITTLEFIELD,
*Chairman Committee on Expenditures in the Agricultural Department,
House of Representatives, City.*

JANUARY 17, 1907.

(Part of testimony given on above date before Committee on Expenditures in the Department of Agriculture.)

AFTER RECESS.

STATEMENT OF CHARLES P. NEILL, ESQ., COMMISSIONER OF LABOR.

The witness was duly sworn by the chairman.

The CHAIRMAN. What position do you hold now, Mr. Neill?

Mr. NEILL. Commissioner of Labor.

The CHAIRMAN. And as Commissioner of Labor you have the supervision of the collection of statistics in connection with that Bureau?

Mr. NEILL. Yes, sir.

The CHAIRMAN. Are you familiar with the statistics that have been heretofore collected by the Department of Agriculture under their Bureau of Statistics?

Mr. NEILL. No, I can not say that I am, Mr. Chairman.

The CHAIRMAN. We have had the head of that Bureau here, and his statistics are largely confined, of course, to agricultural matters—farm and agricultural products; but we have found that he had made more or less investigation in connection with the matter of farm labor, and that is a matter that I suppose would naturally be within the scope of the jurisdiction of your Bureau. I will inquire, first, whether your Bureau has done any work along that line?

Mr. NEILL. No; we never have done that. Previous to my coming into the Bureau, Mr. Chairman, the Bureau intentionally kept out of the field of railroad labor and of farm labor, because the Agricultural Department was handling one and the Interstate Commerce Commission the other; so that all the statistics of wages and all the work of the Bureau dealing with wages, with one exception, have never dealt with either farm wages or railroad wages.

I might go on and say that it would be impossible for us to handle farm wages without a very much larger bureau than we now have. Recently Mr. Olmsted and myself took up the question of our undertaking some work connected with farm wages, and I expressed not

(Witness: Neill.)

only a willingness but a desire to do it if we could arrange it in any way so that there would be no overlapping. During this past summer, for the first time, we began an investigation—we have not yet completed it—into the question of the scarcity of farm labor at this time, to see to what extent immigration is meeting the demand for farm labor. That, as far as I know, is the only time the Bureau has ever had anything to do with farm labor; and that is being done with a very small investigation, and only occupies the time of practically one man.

The CHAIRMAN. So that, as far as that item is concerned, there would be no duplication of work between your Bureau and that of the Agricultural Department?

Mr. NEILL. No; none whatever.

The CHAIRMAN. Have you had occasion to investigate to any extent the question of statistics and their gathering and utilization by the various Departments of the Government?

Mr. NEILL. Principally in connection with our own Department, the Department of Commerce and Labor, and in order to avoid duplication we have done this in that Department: The Secretary has appointed a committee which is charged with the responsibility of seeing that there is no duplication of statistics, and that committee is to meet from time to time.

The CHAIRMAN. When you say "no duplication of statistics," you use that term with reference to other Departments of the Government?

Mr. NEILL. No; within our own Department.

The CHAIRMAN. Oh, in your own Department?

Mr. NEILL. Yes; you see we have no jurisdiction outside of that. This committee meets from time to time, and each bureau of our own Department which does any statistical work submits a statement of the work which it has undertaken or is about to undertake. The committee goes over all that, and if any of it seems to be duplicated work the matter is taken up with the two bureaus, and, if necessary, will be referred to the Secretary to determine what shall be done about it. We endeavor to avoid, and I think succeed in avoiding, duplication in our own work.

I might say here that there was a great deal of discussion last year, and perhaps more the year before, over the question of duplication in statistical work; and there has been—

The CHAIRMAN. You mean duplication relating to the Departments generally?

Mr. NEILL. Yes; the Departments generally; and there has been, I think, some misunderstanding on account of what appears to be similar work, when in fact it is not similar at all. Take, for example, the investigation which we recently undertook into convict labor. The Census Bureau intended—I do not know whether it was able to carry out its investigation or not—the Census Bureau, at the time the Bureau of Labor planned the investigation, also planned an investigation into convicts. The work that we did they could not do, and the work that they did we could not do, for this reason: Their work in all cases constitutes an enumeration. They have to take every individual. It is work that must be done quickly, rapidly, and requires a large number of men for a short period of

(Witness: Neill.)

time. Our work, on the other hand, requires a much smaller number of men.

The CHAIRMAN. That is for the purpose of getting contemporaneous figures, I suppose.

Mr. NEILL. Yes.

The CHAIRMAN. All relating, so far as may be, to one point of time?

Mr. NEILL. Yes; for example, they simply took up the question of convicts, and their nationality, and matters of that kind. We took up the question of the general output and its influence on the outside market. For instance, one of our men might be in a penitentiary for three or four weeks making a careful, detailed study of the books, going into the whole question of the cost. We went into the question of what the average output per convict was during the year, the average cost of maintenance, and those things that bore on the industrial end of the problem.

The Census Bureau is not equipped for and can not do that kind of work. On the other hand, we are not equipped for and can not do and would not undertake the elaborate kind of work that the Census undertakes. You may put it this way: Our work is intensive work, and theirs is extensive; and although we may cover the same subject, we cover it in entirely different ways. The work that we do, I think it is perfectly fair to say, the Census could not do, is not equipped to do, and can not be equipped to do, it is so far from their general line of work. On the other hand, we could not begin to do their kind of work; and if we attempted to expand the Bureau to do work of that kind it would simply unfit us for the more intensive, what you might almost call microscopic, class of work we have to do.

The CHAIRMAN. That is, it is not practicable, in your judgment, for one man to undertake to do both of those things at the same time?

Mr. NEILL. No; it is not so much that as it is that the whole organization of the office is so entirely different.

Let me put it in this way: Every five years, in taking this manufacturing census, the Census Bureau undertakes to get the wages that are being paid in manufacturing establishments. They have to get that information from every establishment in the United States. They prepare schedules. Those schedules are left with the various manufacturers, and, as I understand, they are filled out by the manufacturing establishments and returned to the Census Bureau. The questions they ask are very simple. For example, they will ask the total amount of wages paid in that establishment during the year. That is in the books, and it is a very simple matter to get. There can not be any mistake about giving it. They get that information from every manufacturer in the United States.

The Bureau of Labor endeavors to maintain an annual table, showing the changes in wages from year to year in certain occupations. We can not begin to cover every establishment. We take certain representative establishments, and our agent goes over there, and goes over the pay roll of the establishment. One of our men may be in one place for thirty days getting that material, going over their pay rolls carefully, looking over them, especially where

(Witness: Neill.)

they pay by piecework. He may work there for a period, say, of thirty days; and after going down that list he does not know which of these men's earnings represents full time, and which does not. So he will ask the superintendent of the division, for example, what is the limit below which a man, who could not earn up to that limit, working full time, would not be kept. The superintendent says "So much." All right; he will then go down and strike all those off the roll, as being plainly men who have not worked full time. After he has struck out all those who can be struck out under this general rule, he will get the superintendent of each division to go over that whole roll with him, and take the particular men in charge of smaller groups, and have them indicate to him which people on that roll are not credited with full earnings—that is, those who did not work full time. After that is done he will take the remaining men, and take their actual earnings for the period, say, of thirty days or two weeks, as the case may be. Then, by dividing that up, he gets the actual earnings per day and per hour for his records in that given occupation.

It could be said, "The Census Bureau, for example, is taking statistics as to wages and you are taking statistics as to wages." That would be perfectly true, and yet the work is absolutely different. As I say, it could not be done by the same bureau. A bureau equipped to do this kind of work could not undertake the kind of work the Census does, and the Census could not get down to this kind of work without having an absolute and separate division there to do it, and the head of that division would have to know as much about it as the head of our Bureau would know or its staff of men. What I mean is that when you come down to the detail work in the direction and supervision of this kind of work, if you attempt to combine it, it results in putting one man at the head in the case of whom it is simply impossible that he shall be an expert in all these fields, and the men who, under our method, are real experts would simply be cheap men who could not possibly supervise and direct the work.

The CHAIRMAN. I do not quite see, Mr. Neill, why your man, for instance, who must be a pretty intelligent man to get these results you are speaking of—that is, you intend to have him so, of course—

Mr. NEILL. Yes.

The CHAIRMAN (continuing). I do not quite see why he, for instance, while he is making an examination for you can not with very little difficulty, inasmuch as he is on the spot, get the larger and more general information that seems to be collected by the Census Bureau.

Mr. NEILL. The reason is that we probably do not cover one plant in a hundred.

The CHAIRMAN. You would not cover the whole field, but as to the plants that you do reach, of course you could get the information with very little difficulty?

Mr. NEILL. Yes; that is true in the case of the few plants that we reach, but the question is this: The kind of a man that we have to use is, you can see, an expensive man. The kind of man who leaves a schedule and brings it out is a cheaper kind of a man. You could get almost any kind of man to distribute and collect those schedules under the direction of a competent supervisor for that city or that district. You can see, of course, that to take men of the class that we have to use and send them to every place in the United States

(Witness: Neill.)

would require an almost inconceivable expense, and the kind of men that can only do that kind of work we could not use at all.

The CHAIRMAN. Yes; I see.

Mr. NEILL. Take this case now: Last year we were making a study of certain agricultural conditions in the West, or, at least, of the question of farm labor in the West. I took one of the best men we had in the Bureau and sent him out with directions to go through the wheat belt, for example, and make a very careful study there of the difference in the demand for labor, say, in wheat raising between the various periods of the year; that is, I directed him to find out how much increase there was in the demand for a certain short period, to find how long that period was, how long it lasted, what wages they had to pay, where they got their men from, what those men did during the other periods of the year, and, beginning up in Minnesota, to follow that thing right down to the southern end of the wheat belt, studying the problem, not merely as an agricultural but rather as a general industrial problem. It was a problem in casual employment, you see, and the man had not only to go into the question of farm labor, but he had to follow those men through, find the various kinds of work they were employed in, find whether they were local people there or whether they were men that were migratory and moved back and forth, and it required a good deal of knowledge and experience outside of agricultural work. The agricultural end of it was really the less important end; it was an incident to the larger study.

The CHAIRMAN. Yes; but the wage factor was the dominant feature of the whole thing, was it not?

Mr. NEILL. No. The question there was to determine what were the difficulties in the way of farmers getting labor during the harvest period—to find why they could not get it at that period and to find what would be necessary in any given locality to get a permanent supply of labor there for the farmers. Of course, that involved going into the general question of mixed industries in such a way that at the time the farmer needed the man he would not be in the other industry, because that industry would be idle, you see; to find where those men were being drawn from. It was not simply a question of what wages they were being paid; it was a wider investigation than that, although, of course, at bottom the fact was that the farmer could get them if he would pay enough wages. But, for example, Mr. Littlefield, it was not merely a question of offering \$3 a day for a short season for a man that was only getting \$1.50 somewhere else, because a man would not come for \$3 a day for three weeks if he felt that he could not get his other position back.

The CHAIRMAN. It was not so much a labor problem as it was an industrial problem?

Mr. NEILL. I use the term "labor problem" in the sense of that aspect of an industrial problem.

The CHAIRMAN. And, of course, labor is involved as one of the features?

Mr. NEILL. Certainly.

The CHAIRMAN. But you were treating this from a larger sense?

Mr. NEILL. Certainly.

The CHAIRMAN. And a broader point of view, and labor was only one of the minor factors?

(Witness: Neill.)

Mr. NEILL. Yes; and yet it might be said that we were making an investigation of farm labor, for in one sense the question of farm wages came into it, you see.

I myself believe thoroughly in concentration and centralization of this work wherever it can be done. But there is this danger, Mr. Littlefield: That a concentration that seems to effect good results may, when you come to study it much closer, be perfectly demoralizing to the actual efficiency of the various kinds of work.

The CHAIRMAN. Of course, no one would knowingly submit a centralization proposition that destroyed efficiency.

Mr. NEILL. I mean to put this down as a general proposition: A man will say to me, "Are you a statistician?" "Yes." "Will you take this thing up?" I will say: "I do not know anything more about it than the man in the moon." Statistics are simply one way of expressing results attained in various lines of study. A man has to have some knowledge of the principles of statistics and the methods of handling them; but more than that, he has to be somewhat of a trained man in the particular field that he is investigating.

The CHAIRMAN. In other words, your proposition is that a man can not efficiently conduct a statistical investigation or examination unless he has information and knowledge as the result of study and experience of that subject?

Mr. NEILL. Certainly. In the first place, he has to know the subject thoroughly in order to know how to properly investigate it. His statistics are merely the method of expressing the results of that study. It is one of the methods; it is not the only method; it is only a partial method. And, as I say, the difficulty is, I find, in my own Bureau, that it takes all the time and all the intelligence I am capable of to wrestle with these problems, and I am not at all sure that I am meeting them successfully or wisely. If to that work were added a more diverse field of work, I should simply give up in despair.

So that it seems to me that if the Government work is going to be efficiently done, it is going to take a high-grade, well-trained man at the head of every department of statistical work which deals with a different topic from any other one. As I say, in census work there is a wide field, because, if it is a question merely of enumeration, the methods of enumeration are practically the same in all lines of work; and if it is a question of census, which is a kind of enumeration, one man can properly direct an enormous number of census undertakings. But if it is going to come down to getting statistics showing the vital questions not connected with industrial problems, but vital problems, or social problems—

The CHAIRMAN. That is, the relation one factor in the equation has to another?

Mr. NEILL. Exactly; the man has to be a trained man in that particular field.

The CHAIRMAN. Right there; have you, in your Bureau, made from time to time analytical and concrete summaries of the work that you do in all these various branches?

Mr. NEILL. In what way do you mean?

The CHAIRMAN. Do you summarize, for instance, the results of your investigations so that in connection with the statistics of your

(Witness: Neill.)

Bureau you could give from time to time the rate of wages in a certain industry?

Mr. NEILL. No; but we do this: We take the wages in certain given industries each year, year after year, in the same industries and the same establishments, and they are published each year on exactly the same basis, and summaries are made showing the comparison year by year.

The CHAIRMAN. Then you do summarize them in that way?

Mr. NEILL. Oh, yes; undoubtedly; unquestionably. Now, on that very matter, for example, take a single agent: We have some men who have worked, say, in the steel industry, and handled that for a number of years. If we should take them and put them to getting wages, say, in cotton mills, they could not do one-half the amount of work there that they had been doing; and if you took a cotton man and put him into steel, he could not do half the former amount of work there. Those men have become practically experts in handling the different methods in which wages are paid in order to get what we want to get, the correct earnings per hour for comparative purposes.

The CHAIRMAN. Then you do make summaries of the detailed information that you get?

Mr. NEILL. Oh, yes—always; always. The method of presenting our work is that the first few pages of a report give the text, explaining in full the larger tables, and then every large table is summarized so that anyone that wants the information can, in the first few pages, get a summary of exactly what has been done. Then the students of the subject, who want to go further, can turn over to the more complete tables and follow them through and get all the detailed information they want. And I am thinking now of even having a third method: That is, first giving the results simply in text, in a very few pages, so that anyone can pick the volume up and in a very few minutes see exactly what it brings out. Then, second, having a slightly more elaborate text, going further with the summaries. Then, third, having the large, elaborate tables, which are invaluable for students, but not for the general reader, or the man of intelligence who simply wants to get the net results and see some of the different factors in the results.

The CHAIRMAN. You spoke in the first instance of examining your own Department carefully in reference to duplication of work in that Department.

Mr. NEILL. Yes.

The CHAIRMAN. That was about the time of your taking charge, I suppose?

Mr. NEILL. Yes.

The CHAIRMAN. What percentage, if any appreciable percentage, did you find was being duplicated in your own Department?

Mr. NEILL. Practically nothing. There were some cases in which the same work was apparently being done; but when we came to look into it we found, as I have said, that we had done the work in one way and another Bureau had done it in another way.

The CHAIRMAN. Do you mean by that that you were both reaching the same result in a different method?

Mr. NEILL. Oh, no; we were both investigating different phases of the same general subject.

(Witness: Neill.)

Let me take as an illustration a case that is up at present. There has been a great deal of discussion in Congress about it. Take the question of an investigation of child labor. There has been a question raised as to whether that had not been done by the census. Mr. North will say very frankly that the kind of investigation that is desired his Bureau can not make, and I will say that there are certain parts of the investigation that we could not undertake, that could only be made by census methods. The Census Bureau can furnish a large amount of very important and valuable data on the subject; but when that was done, unless it was supplemented by a further investigation, it would be of very little use, and so our investigation would be of little use unless we had the supplementary work of the census. They can give you data concerning the number of people at work in various occupations, and things of that kind; but let me put it this way: I understand that they will be able to show the death rate—say, in given occupations. That death rate is an average. Suppose you take a given occupation; it is the average death rate that they give. Suppose, now, you get it in various sections of the country, and in the country as a whole. The most important question there is, what is that average composed of? Is it an inevitable death rate, or is it a death rate that could be and ought to be lessened?

The CHAIRMAN. Yes; upon what factors is it based?

Mr. NEILL. Yes. Now, our idea was to take certain industries, for example the best and the poorest factories of that industry, have a careful study made of those, running over months, and have the records, if possible, and go over their pay roll; or, rather, go over, for example, the death list of the city for several years past and select their employees and find what percentage of them died of certain diseases, and make a comparison. You might find then that this death rate was lower, perhaps, than the average in the best factories and higher in the poor factories. I am thinking of one industry now in which I am told—I have never looked into it carefully, but I believe it is true—that probably 70 per cent of the men die of tuberculosis, and probably with proper ventilation and sanitation not over 10 per cent of them would die of tuberculosis.

Those are things that can only be worked out by careful study on the spot, lasting over months, and under the charge of competent men. I have been asked "How would you undertake that kind of an investigation?" To begin an investigation of that kind would present an enormous problem. The way I would go about it would be to take the census records first and select from them the lines of work employing the greatest number of women and children, or those in which certain other factors were most important. Then I would take three or four of my best field agents, and I myself would go into the field, and we would make a general study of the whole situation, probably for some months, before we did any planning of any sort. Then we would sit down, after having covered the field in a general way and having gotten a knowledge of what the problem was, and proceed to map out a tentative plan of going at that kind of an investigation and getting at what we wanted. After having done that, we would have to submit our plan to people engaged in the various lines of work, experienced in the field, to find if that would get at what we wanted to get in the easiest way, or if there

(Witness: Neill.)

was a simpler way of getting at it; and it would be a matter of five or six months of hard study, with assistance from experts outside, before we would even know how to begin our problem.

I state that to show you the nature of the problems that confront us. That is work that the Census Bureau is not equipped to do and ought not to be equipped to do. As Mr. North himself has said to me time and again, "We could not go into that kind of work. That intensive work is not a part of census methods."

The CHAIRMAN. The terms "intensive" and "extensive" are used by you as practically synonymous with "detail" and "special" as compared with "wholesale" and "general?"

Mr. NEILL. Yes; certainly. We go into what I may call intensive or almost microscopic work to show the detailed working out of these things of which they give us the general scope and the trend. That general trend, as I tried to make clear here, can not always be understood. It may be very misleading, unless you get down and find the details that further explain that general trend. It may represent the combination of two factors, or it may represent the combination of thirty factors, and how you are going to handle it and how you are going to eliminate this or that condition, or reach this or that net result, will depend on how many factors enter into making it. As you say, you have got to know how many factors you have in your equation.

The CHAIRMAN. In order to undertake to analyze the whole proposition, you have to segregate it into its various factors?

Mr. NEILL. Certainly.

The CHAIRMAN. In that way the general information acquired by the Census Department is available simply as a basis?

Mr. NEILL. Certainly.

The CHAIRMAN. Is there any work being done in your Bureau that could be with propriety transferred to the Census Bureau?

Mr. NEILL. No; I think all the work we have ever undertaken that could be transferred has already been transferred. Formerly, before the permanent census was organized, the Bureau of Labor was the only bureau that had a permanent field force. When Congress wanted any work done, whether or not it bore directly on the purposes of the Bureau of Labor, it was turned over to that Bureau. For example, the first investigation of the question of marriage and divorce was made by the Bureau of Labor, although it had nothing to do with its work. Later on the statistics of cities were taken. All those things were entirely outside the original scope of the Bureau, but they were undertaken simply because there was no other existing bureau with an adequate field force. Now those things have all been turned over to the Census Bureau. The present investigation of marriage and divorce is being taken by the census agents; the statistics of cities are now being conducted by census agents; and all work of that kind that did not have a direct bearing on or did not require an intensive study of labor or industrial conditions has been taken up and given to the Census Bureau. Our Bureau is trying to confine itself now more particularly to the study of labor problems or different aspects of industrial problems.

The CHAIRMAN. Are you familiar with the statistical work performed by other bureaus in other Departments?

(Witness: Neill.)

Mr. NEILL. I do not think I am sufficiently familiar with that work, Mr. Chairman, to discuss it for record or to make any statement that would be of value to the committee.

The CHAIRMAN. So that you would not be able to state whether the work done by the Bureau of Statistics is being duplicated in the Department of Commerce and Labor.

Mr. NEILL. No; as I say, as far as the committee of our Department goes, we can only see that we do not duplicate any work in our own Department.

It seems to me (if I may venture this suggestion, which just occurs to me now) that a similar board might be organized, composed of representatives from all Departments, which would meet once or twice a year and have submitted to it, before they were undertaken, all the proposed investigations of any bureau undertaking statistical work. They could be looked over then by this joint committee; and if any of them seemed to be duplications they could be further studied, and if they were duplications the duplication might in that way be prevented.

The CHAIRMAN. Is there any such board in existence to-day?

Mr. NEILL. No; I do not think there is. Outside of our own Department, I do not think there is any committee at all.

The CHAIRMAN. I think that is a good suggestion. That would tend not to eliminate, but to harmonize—to unify.

Mr. NEILL. Yes, sir. There is another thing that board might do. If they found, for example, that two bureaus or two departments were beginning investigations along very similar lines it might be that by extending one of them or both of them very slightly they might be coordinated and much more valuable results obtained. Very often, you know, in an investigation a little lapse here and there on an important point will render the work useless. For example, in sending out schedules, if a single question is answered in three or four different ways it is simply useless. You have to get it so that they all come in on exactly the same basis; otherwise you can not tabulate. In the same way you may get two investigations that, if they were just a little closer together, would have given you very valuable, wider results.

Mr. SAMUEL. Very often the information gathered in one direction would dovetail in with the other?

Mr. NEILL. Exactly. For example, I feel that certainly railroad labor is too important a thing to be eliminated from our annual wage report.

The CHAIRMAN. Where is the only information we now have on that subject obtained? Through the Interstate Commerce Commission?

Mr. NEILL. Through the Interstate Commerce Commission. I have already discussed the question informally with the statistician of the Commission, to see if it was not possible that they could continue to collect the figures, but do it in such a way that we could use them in connection with our figures; in other words, collect them on such a basis that we could add them to our figures and give a fuller report than we now give. I am afraid it is going to be impossible, because of the methods of railroad payments. I do not think we can ever get it reduced to a uniform basis.

The CHAIRMAN. Can you state offhand the number of departments

(Witness: Neill.)

that have statistical bureaus connected with them? For instance, we have the Bureau of Statistics of the Department of Agriculture. Then we have the general statistical bureau over which Mr. Austin presides.

Mr. NEILL. That is in our Department.

The CHAIRMAN. That is in your Department?

Mr. NEILL. Yes.

The CHAIRMAN. How many statistical bureaus are there in the Department of Commerce and Labor?

Mr. NEILL. There are the Bureau of Labor, the Bureau of Statistics, and the Bureau of the Census. The Bureau of Immigration has published a good deal of statistical work. I do not know that the Bureau of Corporations has yet undertaken any work of that kind. I do not recall any others now, but there are four or five, at least, in our own Department. Outside of that Department the only one that occurs to my mind now is the Bureau of Statistics of the Department of Agriculture.

The CHAIRMAN. This commission that you speak of might well be composed of the heads of the various bureaus?

Mr. NEILL. Yes; I say I think if the heads of the statistical bureaus of all departments were combined into a committee, and required to meet once in so often, and each one submit an outline of the work that was to be undertaken the following year, it would not only avoid duplication, but they might find that two of them would get on ground so close to each other that by conference——

The CHAIRMAN. A little increase in scope?

Mr. NEILL (continuing). By a little increase in scope, they could bring them together, and almost double or treble the value of each study, on account of the assistance it would get from the other study.

I think, Mr. Chairman, in a word, that there is a very large field for improvement; not so much in the exclusion of duplication, for I think there is not so much of that, but in the question of coordinating, harmonizing, and bringing together, in such a way that they will assist one another, the Federal bureaus of statistics.

The CHAIRMAN. Nothing of that kind exists to-day, I suppose?

Mr. NEILL. Nothing at all; no.

The CHAIRMAN. Of course no bureau chief has any power to originate a proposition of that kind?

Mr. NEILL. It does exist in our own Bureau.

The CHAIRMAN. Yes; in this particular Bureau.

Mr. NEILL. In our own particular Department.

The CHAIRMAN. But, I say, there is no coordination between bureaus?

Mr. NEILL. Yes; as I say, Mr. North is the chairman of the committee. Mr. North, Mr. Austin, and myself are a committee in our own Department, organized with a view to do exactly that work of excluding duplication; and we have also taken up the question of seeing if we could not bring about coordination.

The CHAIRMAN. Yes; but at present there is no coordination of all the bureaus?

Mr. NEILL. No.

The CHAIRMAN. In the various departments?

Mr. NEILL. Not yet.

The CHAIRMAN. I think that covers everything we wish to ask you. We are much obliged to you, Mr. Neill.

JANUARY 30, 1907.

AFTER RECESS.

Present: Messrs. Littlefield (chairman), Samuel, and Flood.

Present also Mr. A. Zappone, Chief of the Division of Accounts and disbursing clerk, Department of Agriculture; Mr. Victor H. Olmsted, Chief of the Bureau of Statistics, Department of Agriculture, and others.

STATEMENT OF MR. O. P. AUSTIN, CHIEF OF THE BUREAU OF STATISTICS, DEPARTMENT OF COMMERCE AND LABOR.

The witness was duly sworn by the chairman.

The CHAIRMAN. You are the head of the Bureau of Statistics in the Department of Commerce and Labor?

Mr. AUSTIN. Yes, sir.

The CHAIRMAN. Have you any knowledge as to the character of statistics that are collected by the statistical bureau in the Department of Agriculture?

Mr. AUSTIN. I know that they collect statistics, and I frequently refer to them, and republish certain of them in the Statistical Abstract of our Bureau, but that is all I know about them.

The CHAIRMAN. Are there any statistics collected by your Bureau that would be a duplicate of the statistical work done by them?

Mr. AUSTIN. They do reproduce certain statistics collected originally by our Bureau—that is, the statistics of imports and exports of agricultural products. They call upon us for our statements of imports and exports, article by article and country by country, and I recall that frequently they have apparently been waiting to obtain our proofs as soon as possible, in order to use them. At least, they say that they rely upon us for the statements of imports and exports of agricultural products, which they reproduce in a somewhat different form, reclassified and grouped.

The CHAIRMAN. Do they do any original collection of those statistics?

Mr. AUSTIN. So far as relates to imports into and exports from the United States?

The CHAIRMAN. Yes.

Mr. AUSTIN. No; I think I am perfectly safe in saying that, because the only source of that is the reports of the collectors of customs, and if they called upon the collectors of customs they would simply cause them double the amount of work in order to accomplish the same purpose.

The CHAIRMAN. Have you any men in the field collecting statistics?

Mr. AUSTIN. None whatever.

The CHAIRMAN. Everything you do is done by circulars and correspondence and examination of other Departments?

Mr. AUSTIN. Our chief work is the compilation of statistics of imports and exports. We receive, by law, monthly statements from the collector at each of the one hundred and odd ports, upon a given schedule, of the articles so imported or exported, giving the quantities where possible and values in all cases. Those are compiled in the Bureau of Statistics, and the result given in our monthly publication and in our annual publication, showing the articles imported and

(Witness: Austin.)

exported and the countries from which each group of articles comes or to which each group of articles goes.

The CHAIRMAN: Do you have any other line of investigation except that of exports and imports?

Mr. AUSTIN. In our internal commerce work we collect as best we may the statistics of the movements of certain lines of merchandise on the Great Lakes and of the concentration and redistribution of certain great articles at a few of the great interior cities. On the lakes we supply to the captain of each vessel a special manifest, in which he is requested to state, of about a dozen articles, such as corn, wheat, flour, iron ore, copper ore, and coal, the quantity received and the place at which received and the place at which discharged. He turns these in to the collectors of customs and the collectors of customs forward them to the Bureau of Statistics, and we compile the lake business in that way. That is something which is of recent origin, and it is only during the last few years that we have ever had any record of the lake commerce. I hope some day to be able to apply a similar system to the Atlantic, Pacific, and Gulf coastwise commerce, of which we have now no record whatever. But that is not pertinent to your question at present.

Then we also obtain, from the best sources we can—the reports of railroads, the reports of commercial bodies, and reports published in the newspapers—the quantity of certain great articles entering half a dozen or a dozen of the great interior markets like Chicago, Omaha, St. Louis, Kansas City, St. Paul, Minneapolis, and Sioux City; such as live stock, cattle, hogs, sheep, corn, and wheat entering those places, and meats, grain, and flour shipped out. Then, by comparing the business of each month and each year with that of the previous months and years we are able to get an estimate of the relative condition of the internal commerce of the country in the great articles.

The CHAIRMAN. Does any of that work duplicate any work done by the Department of Agriculture, so far as you know?

Mr. AUSTIN. I think not.

The CHAIRMAN. Does any of that work duplicate any work done in any other statistical bureau of the Government?

Mr. AUSTIN. No; not so far as I know. I think none whatever. I know of no case in which that is attempted to be done.

The CHAIRMAN. What would be your judgment about the propriety of having a coordination of work, resulting from a conference of the heads of these various statistical bureaus in the various Departments? Would it accomplish useful results?

Mr. AUSTIN. You mean by that the head of the Census, the head of the statistical service of the Department of Agriculture, and the head of the Bureau of Statistics of the Department of Commerce and Labor?

The CHAIRMAN. Yes; and any other statistical bureaus; the heads of these different bureaus meeting and conferring with reference to the collection of statistics for the purpose of coordinating their work and seeing that one bureau did not overlap another.

Mr. AUSTIN. It is not impossible and not improbable that that might result advantageously. Certainly an interchange of views and an attempt to cordially and earnestly cooperate in the general work—and it ought to be such, of course, and I am sure it would be as far as

(Witness: Austin.)

I am concerned—might result in some advantages in the statistical work. It certainly could not do any harm, and I think it might be advantageous.

The CHAIRMAN. No practice of that sort is now in vogue?

Mr. AUSTIN. No, sir; not so far as I know, and I assume that I would have an opportunity to participate in any such system.

The CHAIRMAN. Do nearly all of the other Departments have statistical features?

Mr. AUSTIN. The Department of Commerce and Labor has three bureaus engaged in statistical work—the Bureau of Statistics, the Bureau of the Census, and the Bureau of Labor. The Department of Agriculture has its Bureau of Statistics and its Division of Foreign Markets, and the Interstate Commerce Commission has its statistical office. I do not now think of any other statistical bureaus or organizations in any of the Departments which would have a line of service at all similar to our own in which any cooperation or consultation would be advantageous. The Treasury statistics, of course, are so purely those of finance and customs, receipts, currency, etc., that I think theirs would hardly have any close relation to ours.

The CHAIRMAN. You use a great many of their statistics as a basis for your circulars, do you not?

Mr. AUSTIN. Yes. We republish in our Statistical Abstract of the United States the figures collected by the Treasury Department regarding currency and revenue, those of the Department of Agriculture regarding production, and, indeed, almost everything of a statistical nature which we can find in a sufficiently condensed form to seem to justify us in bringing together, in a comparatively small volume, all of those great facts with reference to conditions in the United States, which it seems should be presented in one volume somewhere. That volume has gradually grown up. In the early days it contained almost exclusively the annual statement of the commerce. Then gradually other things were added, and it has come to be looked upon by the public, I think, as the general vehicle for bringing before them the condensed statistics of conditions of commerce, finance, production, and all of those important features pertaining to the general welfare of the United States, including the area of the States, population, etc. And it is certainly a work very greatly in demand. We have calls for it from all parts of the world and at all times of the year. I think that the few pages which we devote to a reproduction of the figures of the Department of Agriculture are well devoted, because the attempt is to bring into one volume the great things which any man and every man studying the general conditions of the United States wants to know. And it is only with that purpose that we devote possibly half a dozen or a dozen pages to agricultural statistics.

The CHAIRMAN. How many people have you in your Bureau?

Mr. AUSTIN. Fifty, in round numbers. It might be 49, or 48, or 51; but in general terms, 50. That includes messengers and the entire force, from the Chief of the Bureau to the laborers.

(Witness: Powers.)

STATEMENT OF MR. LE GRAND POWERS, CHIEF STATISTICIAN OF THE BUREAU OF THE CENSUS, IN CHARGE OF THE DIVISION OF AGRICULTURE.

The witness was duly sworn by the chairman.

The CHAIRMAN. What is your position, Mr. Powers?

Mr. POWERS. Chief statistician of the Bureau of the Census in charge of the division of agriculture.

The CHAIRMAN. In collecting statistics for the census in that division do you duplicate in any way the work of the Statistical Bureau of the Department of Agriculture?

Mr. POWERS. I do not so consider it; no, sir.

The CHAIRMAN. Well, you say you do not so consider it. Do you take the same kind of statistics?

Mr. POWERS. No, sir.

The CHAIRMAN. What sort of statistics do you prepare?

Mr. POWERS. We compile statistics based upon a house-to-house canvass of the farms of the country. By addition the data thus secured give us our totals of the crops actually raised and reported by the farmers.

The CHAIRMAN. Do your men who make the house-to-house canvass get the crops?

Mr. POWERS. Yes.

The CHAIRMAN. Does not the Department of Agriculture do the same thing, or does it get that information from you?

Mr. POWERS. The Agricultural Department, as I understand it—its officials can, of course, tell better than I if I am wrong—secures certain returns from individuals in every town. It has a number of township correspondents, district correspondents, and State correspondents. These correspondents give in their reports to the Department, as I understand, their estimate of percentages of a normal crop which constitutes the crop of that year in their locality, and the Department is supposed to base its published estimates upon a combination of these local estimates and the census reports. The Department has for the census year a statement from its correspondents of the percentage of the normal crop which the crop of the census year may be. Using the census data by counties and by States the Department will, with the percentages furnished by its correspondents, figure out its estimate of the crop. In preparing that estimate, as I understand, it has a large number of correspondents of various grades; first, the local correspondents or township correspondents, then county and State correspondents; all these correspondents to prepare estimates of the crops in their localities, and the Department combines such estimates, and by such combination secures its results, which are estimates and not the results of an enumeration, as is the report of the census.

The CHAIRMAN. Do you take those annually?

Mr. POWERS. No; we take ours once in ten years.

The CHAIRMAN. What do you do in relation to cotton statistics?

Mr. POWERS. That is all in connection with the Division of Manufactures, with which I have nothing to do. They collect statistics from the gins every year, and thus ascertain the actual amount not grown but ginned. And that is the same, of course, in amount as that of the cotton grown. You get in that way an actual bona fide

report of cotton. It is a method which secures its results with less than one-fortieth the number of reports that are utilized by my division.

In 1900 the manufacturing census took for the first time a ginning report, and that was compared with the census report of agriculture. The two reports differed by only a fraction of 1 per cent, and that was due to what was considered in the office the imperfections of the first effort on the part of the Manufactures Division to collect these statistics. It is believed by all officials in the Census that all of that earlier shortage of about one-half of 1 per cent has been overcome. The two reports in 1900 running parallel—one by the farmer and the other by the ginner, the one who raises and the one who handles the crop—were found to be practically identical, varying, as I have said, by about one-half of 1 per cent. Under present methods that variation would doubtless be less than the one-hundredth part of 1 per cent.

The CHAIRMAN. Substantially identical.

Mr. POWERS. Yes, sir.

The CHAIRMAN. How often are those ginning reports taken by the Census Bureau?

Mr. POWERS. They are taken every year.

The CHAIRMAN. What time in the year?

Mr. POWERS. They begin just as soon as the ginning begins—in September, or about that time—and are continued until the ginning operation closes, which is some time in January, ordinarily.

The CHAIRMAN. When do they make that report public?

Mr. OLMSTED. There is a report made up to January, and then they have a hiatus, and then a report along in March or April. These are simply partial.

Mr. POWERS. They give the report of how much has been ginned.

The CHAIRMAN. It was suggested that a report in June would be advantageous.

Mr. POWERS. That is, a report on the acreage. That which is sown; the new crop.

The CHAIRMAN. Is that taken by the Census Bureau?

Mr. POWERS. No, sir. The Agricultural Department makes an estimate of that.

Mr. OLMSTED. I would be very glad if the Census Office were authorized to take a census of acreage every year. It would be a very great help. But as it is now we have to estimate it. We give the best estimate we can.

The CHAIRMAN. The only annual information taken by the Census Bureau is this information in relation to ginning?

Mr. POWERS. Yes; that is all.

The CHAIRMAN. And that is taken during the ginning season and made public as soon thereafter as it can be summarized?

Mr. POWERS. Yes, sir.

The CHAIRMAN. In that case, I do not see where there is any foundation for any suggestion of a report of that kind in June, because there is nothing going on.

Mr. OLMSTED. No; the report in June is a report of acreage.

The CHAIRMAN. The Census Bureau does not have to do with acreage except once in ten years?

(Witness: Powers.)

Mr. POWERS. No, sir.

The CHAIRMAN. Then do you give any amount of acreage that is in cotton?

Mr. POWERS. Excepting that which is grown, that which has been harvested; not the new crop.

The CHAIRMAN. That you only give once in ten years?

Mr. POWERS. That is all.

The CHAIRMAN. What statistics does the Census Bureau gather together and publish annually besides these cotton statistics?

Mr. POWERS. The only annual statistics that are authorized are those on mortality and certain statistics known as official statistics of cities. Then, of course, the other statistics are all special reports which have been authorized by Congress. Those would not be annual reports.

When the census bill was passed there were four fundamental investigations that were called the census proper; and then the office was authorized, when those were completed, which was to be within a certain specified time, instead of running on indefinitely, as they had done before, to take up the other investigations that had been covered by preceding censuses, one after the other, and publish them, not as of 1900, but of certain other specified dates, as they might elect, the idea being, instead of taking up these other investigations at the same time and one delaying the other, that these should be taken up from time to time as those special reports were made. That is being done now.

The CHAIRMAN. Those are not in any sense annual in their character?

Mr. POWERS. No, sir; they are, as a rule, decennial.

The CHAIRMAN. They are supplemental?

Mr. POWERS. They are so made by law. They are called by law supplemental. That is, the main census involves four things: Population, mortality, agriculture, and manufactures. In addition to the decennial manufacturing census, you have authorized a manufacturing census every five years. That was taken in 1905. That involves everything that is covered by the decennial census.

The CHAIRMAN. With relation to what do you take annual statistics besides the cotton industry?

Mr. POWERS. There are the annual statistics of cities—the official statistics of cities—and mortality.

The CHAIRMAN. Outside of that, nothing?

Mr. POWERS. Nothing.

The CHAIRMAN. And so far as you are engaged in statistical work independent of that, that is a supplemental proposition?

Mr. POWERS. That is supplemental work; yes, sir.

Mr. SAMUEL. Do you take agricultural statistics as regards foreign labor?

Mr. POWERS. No, sir; we take no statistics except once in ten years.

The CHAIRMAN. Is there any work that is now being done by the Agricultural Department in the statistical line that could with profit be taken over into your Bureau?

Mr. POWERS. I question it. The work of the two Departments is radically different and involves the use of radically different methods.

(Witness: Powers.)

Individually, I should regret to see any work of the Agricultural Department brought into the Census. That would be my own individual opinion, unless it was decided that it could be done by census methods rather than by estimates. But that involves too much money. It will not be done until Congress gets ready to give much larger sums of money than are now authorized, because it can not be done, in my opinion, without it.

The CHAIRMAN. Is there any work being done by other statistical bureaus or departments outside of the Agricultural Department that could, with profit, be covered into the Census Office, so far as you know?

Mr. POWERS. I think not; no, sir.

The CHAIRMAN. Is there any work that your Department does decennially that is an essential duplication of work being done by any other statistical bureau?

Mr. POWERS. I can not think of any. The Census Office, when it began the statistics of cities, included, following that which had been done by Colonel Wright in the Bureau of Labor, certain statistics of education, but in taking up those statistics after the first year Director North concluded that we should not trench in the least upon the field of the Department of Education and all the earlier questions relating to education have been stricken from the schedules for this investigation. We are constantly studying how to eliminate everything of that kind, and we should not hesitate even if we felt that any of these things could better be done in our division than elsewhere. On the other hand, we feel, as in the instance of this educational work, we ought to avoid duplication, and we have stricken it out.

The CHAIRMAN. Why could not your men, at the time they are taking these statistics that you use, do the other work?

Mr. POWERS. Well, the only statistics which we are taking annually are those for cities of 25,000. That only makes it a very small part of education.

The CHAIRMAN. Twenty-five thousand and over?

Mr. POWERS. Twenty-five thousand and over. You see, the educational division is collecting this information all over the country, and the cities constitute only a small part of it. We would be simply duplicating some of that work, which would probably cause confusion as to a small amount of it. That has been the idea of the office in striking that out.

The CHAIRMAN. It would not be practicable for your men to do the work in those cities and turn the results over to other investigators?

Mr. POWERS. That could be done.

The CHAIRMAN. Would that result in any substantial economy?

Mr. POWERS. Well, yes and no. We are obliged to take our financial statistics, which are the main parts of those statistics with reference to certain fiscal periods, and those fiscal periods do not always harmonize with the school periods. The result is, if we should attempt to take the school statistics in harmony with the financial statistics at the same time, we would not get such a symmetrical class of statistics as the Department of Education is now taking. That is the way we now look at it. I should rather see, as a matter of fact, some effort made to strengthen the Department of Education in those statistics than to have the Census take them.

The CHAIRMAN. Why would it not be a good idea for the men at the head of these various statistical bureaus to meet at short intervals for the purpose of discussing general subjects, seeing that the alignments of work were such as would not involve duplication, and seeing that such of the work done by one bureau as could properly be utilized by another was so utilized?

Mr. POWERS. I think that one of the results of the work of the Keep Commission thus far has been to tend to develop a custom such as you suggest among the departments. I think there is to-day, from all that I can see, a cooperation that did not exist before; that there was a petty feeling of jealousy and rivalry between the departments. The only thing that I would suggest—and I have been thinking for the last three weeks of calling the Keep Commission's attention thereto—is that it would be wise, in my opinion, both for Congress and the departments and the general public, if there were established a bureau of information somewhere in the Government.

For example, a Congressman comes down to my office and wants certain information. He goes to the wrong office, and then I have to think where he can go to get that particular information. I know of plenty of men in various Departments who do not know even what there is in their own Department. The other day a man came to me from the Agricultural Department and wanted a certain thing and I had to refer him right back to the Agricultural Department as the place to get it. Now, if we had a bureau filled with some of the brightest newspaper men, trained to news gathering, and they should endeavor to locate where everything is being done, so that if a Congressman or a Congressional committee wanted a given thing they could tell them exactly where to get it, I think that would be an excellent idea. If such a bureau could be established, working in the right way, it would be possible to tell at a glance just what duplication was going on. In my opinion, that would do far more than anything that has been done to call attention to any and all duplications, and at the same time it would become an agency of great help, both to Congress, to the Departments, and to the general public.

The CHAIRMAN. That is, if a man knew where all the sources of information were—he could not help knowing where there were common sources?

Mr. POWERS. Yes. That is an idea I have had in my mind for the last few days. I had given a great deal of thought to the general subject of how to eliminate all these things and at the same time make the matter as helpful as possible to the general public. That is what any Department ought to do.

Mr. ZAPPONE. Mr. Powers, could not that same information be given in a Government publication, to be supplemented by weekly or monthly publications thereafter?

Mr. POWERS. I think that such a bureau would have to get this thing together, after a time, in ready reference form for their own use, and that could readily be put into shape in the form of a report.

Mr. ZAPPONE. It was my thought, that perhaps a committee could collect all that information and have it published and issued to all Members of Congress, and also have it for ready reference at each department, so that it could be given out to anybody calling for it. In connection with the work of the Keep Commission, such a depart-

(Witnesses: Powers, Zappone, Steuart.)

mental publication has been considered, in which shall be published notes relative to all matters (not of a confidential nature) of public and governmental interest.

Mr. POWERS. There would have to be some headquarters for it in some department, and in order to make it a success I should want to have some newspaper men.

Mr. ZAPPONE. I think that if a representative from each of the departments, or only a few of the departments, assembled as a general board or committee they might collect the important data from each department and issue the first publication. I mention that because the cost of establishing and maintaining a separate bureau for this purpose, to be known as a bureau of information, would be considerable.

Mr. POWERS. I will give you my reason why I should question that. There are a great many heads of departments that "have no nose for news," as a newspaper man would express it, and while they are excellent men for their respective positions, they do not really see that which you want and anybody wants.

Mr. ZAPPONE. Perhaps the head of the department would not want them to see it; it might not be his policy. There may be reasons why certain information should not be given out, as, for instance, matters pertaining to the work of the State Department, War Department, or Navy Department during the consideration and adjustment of international difficulties.

Mr. POWERS. That is right. It would not be that kind of news that should be given out.

The CHAIRMAN. Your suggestion applies to information that is intended for public use?

Mr. POWERS. Only information that is intended for publication.

The CHAIRMAN. Or perhaps for the use of the men in the Government service interchangeably?

Mr. POWERS. Yes, sir.

STATEMENT OF WILLIAM M. STEUART, ESQ., CHIEF STATISTICIAN FOR MANUFACTURES, BUREAU OF THE CENSUS.

The witness was duly sworn by the chairman.

The CHAIRMAN. You have charge of the division of manufactures?

Mr. STEUART. Division of manufactures, in the Bureau of the Census.

The CHAIRMAN. Is there any duplication between the work done by your division and the statistical work done by the Bureau of Statistics in the Department of Agriculture?

Mr. STEUART. No; I think not—now.

The CHAIRMAN. You say "now." Was there at one time?

Mr. STEUART. There was at one time.

The CHAIRMAN. Under what circumstances, and what was the work?

Mr. STEUART. A joint resolution of Congress, approved February 9, 1905, authorized and directed the Director of the Census to collect and publish statistics of the consumption of cotton, the surplus of cotton held by the manufacturers, and the quantity of cotton exported; these statistics to be summarized as of September 1 each year, so as to show the cotton consumption of the preceding year.

In compiling statistics of production as measured by the commercial movement of the crop the Department of Agriculture canvassed the mills in the Southern States for statistics relative to the quantity of cotton taken during the year, and in this respect a duplication would naturally have resulted, to avoid which the Secretary of the Department of Commerce and Labor and the Secretary of the Department of Agriculture entered into an agreement, which provided that the Bureau of Statistics should discontinue the compilation of the report known as the commercial movement of the crop, which had for several years been prepared by that Bureau, and agreed that the necessary statistics of this report be compiled and published in connection with the report of the Census Bureau. Under this agreement, dated July 29, 1905, practically all duplication in the work of the two Bureaus was eliminated.

The CHAIRMAN. That was the ginning proposition, was it not?

Mr. STEUART. No; the new series of reports of the Census Bureau related to the consumption of cotton, while the ginning reports relate to the quantity of cotton produced.

The CHAIRMAN. You are taking statistics with reference to the ginning now?

Mr. STEUART. Yes.

The CHAIRMAN. That is, you do that annually?

Mr. STEUART. Ten reports of cotton ginned to specified dates are collected during the season, and these are summarized in an annual report.

The CHAIRMAN. And the cotton consumption was in addition to that?

Mr. STEUART. Yes; and complementary to it.

The CHAIRMAN. And you are still doing that?

Mr. STEUART. We are still doing that, and the Department of Agriculture has discontinued publishing their report on "The commercial cotton crop."

Mr. OLMSTED. Yes.

The CHAIRMAN. How long ago was that?

Mr. STEUART. About eighteen months ago.

The CHAIRMAN. With that exception, there is no duplication?

Mr. STEUART. No, I do not think that there is any duplication.

The CHAIRMAN. That is, that you know of?

Mr. STEUART. Not that I can recall.

The CHAIRMAN. Is there anything that they are doing in their statistical work that could be more profitably and appropriately done under your Bureau, or is there anything that you are doing that could be more profitably and economically done by them?

Mr. STEUART. That is rather a broad question. There are some persons who think that certain phases of the statistical data of the Department of Agriculture could be collected to advantage by the field force of the Census Bureau.

The CHAIRMAN. What are those phases that could be combined?

Mr. STEUART. I am not satisfied that such a combination could be made, but it has been contended that the agents employed by the Bureau of the Census to collect statistics of cotton ginned, could report the acreage of cotton and furnish information concerning the conditions of the crop required by the Bureau of Statistics of the

(Witness: Steuart.)

Department of Agriculture. These agents are also required to collect statistics for the new series of reports above referred to.

The CHAIRMAN. That is, they could get the statistics at the same time?

Mr. STEUART. Not at the same time, because the acreage is necessarily reported at the time the crop is planted, while the quantity of cotton ginned is reported during the picking season, which is some months later; but, there being a local man employed by the Government in each county for one branch of the work, some think that he is the most appropriate person to get all the information relating to the same subject in the county.

The CHAIRMAN. Well, why could he not do it?

Mr. STEUART. I am not prepared to say that he could not. I do not know the methods of procedure in the Department of Agriculture, because we have not collected statistics of acreage.

The CHAIRMAN. You never had any practical experience in that particular line?

Mr. STEUART. No. Our aim has been to develop to the highest point the collection of statistics concerning the quantity of cotton ginned, and we have been utilizing our agents to the very best advantage to that end and no other, because that is where the law has said our work stops.

The CHAIRMAN. You only cover one branch of the subject.

Mr. STEUART. We cover the quantity ginned. The Agricultural Department covers the acreage.

The CHAIRMAN. How do you cover that? Do you have men that you send out from here?

Mr. STEUART. No; a local man is appointed in each important cotton-growing county. In some large counties there are two. The agent is employed during the ginning season to report the quantity of cotton ginned up to ten specified dates during the season. The dates being the same from year to year, the quantity ginned to each date constitutes a reliable basis for forecasting the probable yield of the year.

The CHAIRMAN. And indicates the relative crop as compared with other crops?

Mr. STEUART. Yes.

Mr. SAMUEL. Does it require any special qualifications to gather those statistics?

Mr. STEUART. Yes; both ability and experience. One or two years' experience is necessary to get the best results.

Mr. SAMUEL. Would that same man require additional experience in order to gather statistics of acreage?

Mr. STEUART. I should think he would require additional experience to estimate the acreage. That would have to be more or less of an estimate. It is true, he would consult the planters and the ginners, but it would require ability and some experience, of course.

The CHAIRMAN. How do you get your statistics as to consumption?

Mr. STEUART. We collect them from the establishments that consume cotton, by use of the same agency force, supplemented by correspondence.

The CHAIRMAN. Cotton mills?

(Witness: Steuart.)

Mr. STEUART. Cotton, woolen, and knitting mills, mattress factories, and all others which consume cotton.

The CHAIRMAN. Well, you get simply the consumption of the raw cotton, do you not? Do you undertake to follow it into the product?

Mr. STEUART. Not every year. We collect every year statistics concerning the consumption of raw cotton, and every fifth year there is a census of manufactures, which obtains the value of the finished product.

The CHAIRMAN. Do you get this information by circular or by personal investigation?

Mr. STEUART. In both ways.

The CHAIRMAN. What is the importance of the information as to consumption, assuming, now, that you get accurate information as to ginning? Are there quantities that are consumed that are not ginned?

Mr. STEUART. No. All cotton must be ginned before it can be used for manufacturing purposes; but statistics of the quantity ginned only give one side. The price of cotton is affected by the quantity of raw cotton carried over each year.

The CHAIRMAN. I should suppose that ultimately it was all consumed; what you mean by that is that it depends on the rate of consumption—as to when consumed?

Mr. STEUART. Yes.

The CHAIRMAN. That is, if a certain percentage is consumed at a certain date, that might have one effect on the price, and if a larger percentage is consumed, another effect on the price?

Mr. STEUART. Yes; the balance at the end of the year shows the amount carried over; in other words, that is available for the next year.

The CHAIRMAN. Now, why should not the department that does those two things do all of the statistical work in connection with the cotton industry; or why should they—that is, what are the reasons for and against, in your judgment?

Mr. STEUART. They certainly should not do it if the departments are to compile separate statistics for different branches of the inquiry. The same agent should not serve two departments. If the Bureau of the Census or the Bureau of Statistics of the Agricultural Department were to collect statistics of cotton ginned and of acreage, the same agents would certainly, I think, be used for both branches of the work.

The CHAIRMAN. But when one department uses one set of statistics and the other another, you think the men ought not to be combined?

Mr. STEUART. The man ought not to serve two departments.

The CHAIRMAN. Why can he not serve two? What is the reason that your department, for instance, could not take its results from a man in the service of the Agricultural Department, and vice versa?

Mr. STEUART. The reasons would be in the detail of the instructions for the man, and where he gets his pay for his work.

The CHAIRMAN. What difference does it make where he gets his pay as to the results?

Mr. STEUART. He is under the instructions of the officer that pays him. He is going to serve the man that pays him.

The CHAIRMAN. Yes; but, for instance, suppose it is all done for your department? You know what the Agricultural Department wants. Of course, I am not saying it is feasible, but simply putting

(Witness: Steuart.)

this case for the purposes of this illustration. You know what they want in relation to acreage, and you can issue instructions that will bring about that result. If it could be done more economically by one man, why can you not issue the instructions that are appropriate in one case as well as the instructions that are appropriate in the other case?

Mr. STEUART. We could. They would be working under the instructions of one department. That is what I mean.

The CHAIRMAN. Assuming, then, that the collection of the statistics was all done under the direction of one bureau, either yourself or the Agricultural Bureau, as the case might be, would there be any saving to the Government in expense by the collection of the statistics by one man?

Mr. STEUART. Assuming that the Department of Agriculture would collect the same line of statistics that they now collect?

The CHAIRMAN. Yes; or assuming that you collect the statistics for them and turn over the statistics to them, would it result in any saving to the Government?

Mr. STEUART. I am not well informed about what the Agricultural Department collects; but it is my impression that they get an estimate of acreage. The employment of the local agents would be rather in the method of an enumeration of the acreage, you see, and I think it would greatly increase the expense.

The CHAIRMAN. You mean to have it all done under one head?

Mr. STEUART. Yes, sir; that is, if the agent in each county was employed to give an enumeration of the acreage in his county, it is my impression that the expense of collecting that information would be greatly in excess of the expense now incurred by the Agricultural Department to get this estimate of the acreage.

The CHAIRMAN. So that instead of reducing expenses you would increase them?

Mr. STEUART. That method would increase the expenses.

The CHAIRMAN. You have not given the subject a sufficiently careful examination so that you feel like expressing a definite opinion on that?

Mr. STEUART. The subject has been discussed very thoroughly, and I think what I have just stated is the conclusion of the officials in charge of the two offices.

The CHAIRMAN. Is there any work being done by the Labor Bureau, or by the Bureau of Statistics of the Department of Commerce and Labor, or by the Geological Survey, that you know of, that is duplicated by any work in the Census Bureau?

Mr. STEUART. No, sir; under the existing laws there is a census of mines and quarries taken by the Bureau of the Census every tenth year. This census covers not only the number of mines, the quantity and value of their products, but also the number of persons employed, the amount paid annually in wages, and other items. The statistical division of the Geological Survey collects annual statistics concerning the quantity and value of the mineral products of the country. This information every tenth year is of course a duplication, in part, of the statistics collected by the Bureau of the Census. Similar conditions exist in the work of the Bureau of Statistics of the Department of Agriculture as compared with the census reports taken every

tenth year of the quantity and value of the agricultural products. As I understand it, however, the work of the Bureau of Statistics of the Department of Agriculture is devoted primarily to the preparation of estimates concerning the quantity of the different agricultural products. These estimates are made in advance of the marketing of the entire crop. The work of the Bureau of the Census is confined to an actual enumeration of the production. This enumeration is made after the crop has been harvested. Therefore, it can hardly be said that the work of the two Bureaus is a duplication. The estimates of the Bureau of Statistics are based largely upon the enumeration made by the Bureau of the Census.

STATEMENT OF PROF. J. H. BLODGETT, AN EMPLOYEE OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The witness was duly sworn by the chairman.

The CHAIRMAN. Where are you employed, Mr. Blodgett?

Professor BLODGETT. In the Bureau of Statistics of the Department of Agriculture, in the small building.

The CHAIRMAN. How long have you been employed in that Bureau?

Professor BLODGETT. I do not know whether I can recall offhand. I think it has been from March 15, 1900.

The CHAIRMAN. You were there, then, in April, 1904?

Professor BLODGETT. Yes, sir.

The CHAIRMAN. Was Mr. Harrison there then?

Professor BLODGETT. I can not recall exactly when Mr. Harrison left. He was connected with the Bureau when I went there and he gradually dropped his service by reason of his health. I can not recall when he really went out of the service.

The CHAIRMAN. Was that about the time when Mr. Olmsted, now the Chief of the Bureau, came to the Bureau?

Professor BLODGETT. I think they overlapped. I think Mr. Olmsted was in the Bureau while Mr. Harrison was there. Mr. Olmsted had been connected with the Bureau in different capacities, so that I am very certain that he was employed in the Bureau before Major Harrison left it.

The CHAIRMAN. Mr. Olmsted has been continuously in the Bureau from that time until now, has he not?

Professor BLODGETT. I think not all the time. I think he was away for some reason or other, so that his service was not continuous.

The CHAIRMAN. I mean from April, 1904?

Professor BLODGETT. From April, 1904, I think he has been there continuously.

The CHAIRMAN. Who did Mr. Harrison's work when he dropped out?

Professor BLODGETT. I think it was done for a while under the direct supervision of Mr. Olmsted.

The CHAIRMAN. What I mean is, who physically did it?

Professor BLODGETT. The same set of clerks have done it for a long time. They have been under the direction of what might be called a section chief, and Mr. Olmsted sat in that room for a considerable time. With regard to dates, I have not looked this up, and I do not want to be held responsible for that part of it.

(Witness: Blodgett.)

The CHAIRMAN. You can revise this statement later on. What was Mr. Harrison doing about the time he dropped out?

Professor BLODGETT. I do not know what he did in the latter part of the time—the very last of his connection with the office.

The CHAIRMAN. What room are you in?

Professor BLODGETT. What is called the township section.

The CHAIRMAN. Is that the room occupied by Mr. Harrison?

Professor BLODGETT. No, sir; it is on the other side of the hall.

The CHAIRMAN. Who occupied the room at the time Mr. Olmsted came into the service for the last time?

Professor BLODGETT. I did.

The CHAIRMAN. Occupied by you alone?

Professor BLODGETT. Yes, sir; that is, I am in charge of it.

The CHAIRMAN. What change, if any, was made in the business of the office, or in the manner of doing its business, at the time Mr. Olmsted came in?

Professor BLODGETT. I can hardly answer that, except as it pertains to my own work. There has been a little elaboration of schedules, and I don't know that I could say there has been any particular difference made in that room. The differences have been moderate and not very striking.

The CHAIRMAN. When were the changes made, if any?

Professor BLODGETT. During the past year the schedules have been enlarged to take in minor crops.

The CHAIRMAN. Was there any change made before this last year in the business of your office and in the manner in which it was conducted?

Professor BLODGETT. Nothing of great import. The work is very nearly the same as it was when I first took it up. We are following very largely the same forms.

The CHAIRMAN. Then do we understand that there was substantially no change except this that you have spoken of as taking place during the last year?

Professor BLODGETT. I do not think of anything in particular that affected us directly. We are working on sheets of the same form as we were working on before and getting out the monthly reports. There have been minor changes in the forms of these sheets, but the general arrangement is the same.

The CHAIRMAN. Who worked with you in the room that you occupied?

Professor BLODGETT. There was a body of clerks there—from 16 to 20 at different times.

The CHAIRMAN. Are any of them in this list that we have here to-day?

Professor BLODGETT. I think not.

The CHAIRMAN. How much time did Mr. Olmsted spend in the Department of Agriculture, in the office that he occupied when he first came in?

Professor BLODGETT. I never knew what he was doing; but he was in the room opposite me, and I used to see him as he passed through the hall, or when I had occasion to go to his office.

The CHAIRMAN. You do not know what work he was engaged on?

Professor BLODGETT. Except that he was supposed to be doing

work upon these crop reports; and, in fact, the other room we considered as the complement of the township work. The county reports and the State reports do not come into my hands. I have been responsible mainly for the township reports, and I know better what is done with them than with the others.

The CHAIRMAN. Have you been there continuously from that time until now?

Professor BLODGETT. Yes, sir; except for such leave as I have taken.

STATEMENT OF MR. ISRAEL W. STONE, AN EMPLOYEE OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The witness was duly sworn by the chairman.

The CHAIRMAN. What is your business in the Department, Mr. Stone?

Mr. STONE. I am a fourth-class clerk at the present time.

The CHAIRMAN. How long have you been such?

Mr. STONE. I judge about eight years. I have suffered a reduction once in the meantime, but was afterwards put back.

The CHAIRMAN. Have you been continuously in the Bureau of Statistics?

Mr. STONE. I have been there about twelve years.

The CHAIRMAN. What room were you occupying in 1904?

Mr. STONE. The room adjoining that in which Mr. Olmsted had his place as Chief of the Section, or Chief of Division, as he was styled at that time.

The CHAIRMAN. You were occupying the room next to the one occupied by the Chief of the Division?

Mr. STONE. Yes, sir.

The CHAIRMAN. What work were you doing?

Mr. STONE. I was doing the tabulation of the county sheets. I had charge of the footings and that class of work.

The CHAIRMAN. What sort of work did Mr. Harrison do?

Mr. STONE. That was work that Mr. Harrison did at the time he was there. Two years before he went away he was ill and I did that work for him, before Mr. Olmsted came in.

The CHAIRMAN. After Mr. Harrison went away and Mr. Olmsted came in, what work did you do?

Mr. STONE. Mr. Olmsted did not come in immediately after Mr. Harrison went away.

The CHAIRMAN. After Mr. Harrison dropped out, who did his work?

Mr. STONE. I did.

The CHAIRMAN. How long did you continue to do it?

Mr. STONE. I think I did it most of the time for nearly two years before Major Harrison went away, then for about eight or nine months after Major Harrison went away. I think it was before Mr. Olmsted came in and took charge of the division that I had full charge of that section and did the work that Major Harrison was doing.

The CHAIRMAN. When did Harrison drop out, if you remember?

Mr. STONE. He dropped out of that section and went over into the library about seven, eight, or nine months before he left the Depart-

(Witness: Stone.)

ment permanently, so that for two years before he went over there he had not been able to do very much of the work. During that period I did the work for him.

The CHAIRMAN. And while he was over in the library did you continue to do the work that he had been doing?

Mr. STONE. Yes, sir; for a number of months, until Mr. Olmsted was assigned to that.

The CHAIRMAN. Then who did the work?

Mr. STONE. I had charge of the footings still, under Mr. Olmsted's direction—doing the tabulation and supervising the details of the work, keeping the clerks supplied with work, etc.

The CHAIRMAN. Did you continue to do the work that was done by Mr. Harrison?

Mr. STONE. No, sir. Mr. Olmsted, I think, enlarged its scope considerably.

The CHAIRMAN. What was done in reference to enlarging the scope?

Mr. STONE. He took hold of the township and the county lists and the various lists and increased them very largely. Each month a circular was sent out to postmasters, and the list was thus continually augmented.

The CHAIRMAN. What do you mean by that—you got more information or got it from more people?

Mr. STONE. More people were reporting.

The CHAIRMAN. It broadened the scope of the investigation?

Mr. STONE. Broadened the scope of the reports, you might say.

The CHAIRMAN. That is, you sent out more circulars to more people?

Mr. STONE. Yes, sir; and received more replies.

The CHAIRMAN. Was there any change in the character of the information?

Mr. STONE. No, sir; not until about a year ago.

The CHAIRMAN. How many people were you sending circulars to before Mr. Olmsted came in and made this change?

Mr. STONE. I think we were sending them every month to about 35,000.

The CHAIRMAN. And to how many after the change was made? That is, how many names did you add?

Mr. STONE. I do not think I can say, because I did not have occasion to keep track of it as closely as Mr. Olmsted did himself. But my recollection is that we had about 30,000 or 32,000 township and about 3,000 county correspondents.

The CHAIRMAN. You have already said you had 35,000.

Mr. STONE. Well, about 35,000; yes, sir. And this is outside the ginners' list that we had of about 40,000 names, the independent farmers' list of 40,000, and the special cotton list of 15,000.

The CHAIRMAN. What I was trying to find out was how many names you added to your list of 35,000 after you increased your sources of information.

Mr. STONE. I can not tell you, because I had no occasion to keep track of it.

The CHAIRMAN. What else was done by way of change in your Bureau?

Mr. STONE. I think Mr. Olmsted increased the efficiency of the

(Witnesses: Olmsted, Stone.)

clerks quite a good deal—in attendance, in their work, and their ability to do the work, perhaps—by his methods of control.

The CHAIRMAN. Was there any change in the methods of the work in the bureau; and if so, what?

Mr. STONE. I do not understand that there was any large amount of change in the work that was done in the division or in the section.

The CHAIRMAN. That is, any change in personnel or in redistribution of duties, or any change in methods of getting information?

Mr. STONE. No, sir; until we arrived at those additional schedules that we put on about a year and a half ago. The matter was brought forward and worked up, you know; it was studied over. We had to have a certain line of questions on certain groups. Under Mr. Olmsted's direction the schedules were enlarged and we took in ten or twelve additional groups—minor groups.

The CHAIRMAN. Going more into detail?

Mr. STONE. It made quite a good deal more work.

The CHAIRMAN. You say that was done about a year and a half ago?

Mr. STONE. Yes, sir.

The CHAIRMAN. That was about the time of the Hyde difficulty, was it not?

Mr. STONE. Yes, sir; right after that.

Mr. OLMSTED. May I suggest something?

The CHAIRMAN. Certainly.

Mr. OLMSTED. Both these witnesses have overlooked the fact that when I took charge there was no Division of Domestic Crop Reports.

The CHAIRMAN. You may ask these witnesses anything at any time.

Then, with the exception of the additional schedules adopted something like a year and a half ago and broadening the sources of your information, you recall no change in the method of doing business in the office?

Mr. STONE. I do not know that—of course that would be a reflection upon myself, because I had charge of that work for some time.

The CHAIRMAN. There is no reflection intended on anybody.

Mr. STONE. No; I do not understand that there was any great amount of increase in methods in the office.

The CHAIRMAN. There may not have been any occasion for change. I do not know how that was.

Mr. STONE. And I do not understand that Mr. Olmsted took charge, of course, of the two sides. Before that time we had two sections, and they were under the charge of Mr. Holmes largely. Professor Blodgett had charge of one and Major Harrison and myself the other.

The CHAIRMAN. What work was done by yourself and Mr. Olmsted, when he came in as the head of the Bureau, in addition to what had been done by you?

Mr. STONE. We did quite a good deal of work for other Bureaus—for the chemical bureau, for the Division of Foreign Markets, and many other people.

The CHAIRMAN. Was that work that had not been done before?

Mr. STONE. Yes, sir; that had not been done before.

The CHAIRMAN. By whom was that done—by you or Mr. Olmsted, or both of you?

(Witness: Stone.)

Mr. STONE. It was brought over under Mr. Olmsted when he was Chief of Division for the first time, I think.

The CHAIRMAN. From what Bureaus did you say?

Mr. STONE. From the chemical bureau. They were making experiments and had a great amount of computations to make on the lines which they laid down. That was done on Professor Blodgett's side, and on our side of the hall under Mr. Olmsted's direction.

The CHAIRMAN. What was the other Bureau.

Mr. STONE. The other was a division of our own Bureau, the Foreign Markets Division; that was work that we had never been doing before.

The CHAIRMAN. You were simply working out results for these other people?

Mr. STONE. Yes, sir.

The CHAIRMAN. That involved details.

Mr. STONE. Yes, sir; it involved a great amount of figuring.

The CHAIRMAN. Was there any increase in personnel in the office there except by the addition of Mr. Olmsted?

Mr. STONE. I think occasionally there was a young gentleman brought in there; some young clerk. I think there were four or five young men brought in there.

The CHAIRMAN. Brought in on that work?

Mr. STONE. No, sir; they were brought in and put in the library on the other side, and I have no knowledge of what they were doing.

The CHAIRMAN. What I mean is: In your room?

Mr. STONE. No, sir.

The CHAIRMAN. Was this work sufficient in quantity to keep both yourself and Mr. Olmsted employed from the time when he came in—the first nine or ten months?

Mr. STONE. Well, generally we had all the work that we felt we ought to do.

The CHAIRMAN. That is not exactly the question. As a matter of fact, did the business of the office, as thus conducted, with the additional work that you have described, keep both yourself and Mr. Olmsted employed fully all the time?

Mr. STONE. Yes, sir.

The CHAIRMAN. Then I infer from that that Mr. Olmsted must have been at the office and employed substantially all the while?

Mr. STONE. I think so, sir. I do not recollect that Mr. Olmsted was away any more than anybody else. Aside from his thirty days' proportion of annual leave, I think he was there all the time. I do not recollect that he was away any unusual number of days.

The CHAIRMAN. You have no way of giving, except by an estimate, the additional sources of information that you have suggested; that is, you were sending out 35,000 circulars or you were in communication with 35,000 sources of information? Can you give any approximation as to how many in addition to that you took on?

Mr. STONE. No, sir; I do not know to-day, because I have not had access to the figures in the past six or eight months. I am not in charge of any of the work now, and I do not know what the lists show.

The CHAIRMAN. Have you ever made any estimate as to the number of correspondents you had before that time?

Mr. STONE. Not recently; no.

(Witnesses: Olmsted, Stone.)

The CHAIRMAN. So that it is merely your recollection prior to that time?

Mr. STONE. At that time I had a list which showed accurately the number of correspondents.

Mr. OLMSTED. You will recall, perhaps, that when I was placed in charge there there was no division of domestic crop reports?

Mr. STONE. That is right.

Mr. OLMSTED. The work was carried on by two sections practically, one being the township section, in charge of Professor Blodgett, and the other the county section, in charge of Major Harrison and yourself.

Mr. STONE. Yes, sir; that is right.

Mr. OLMSTED. When I was placed in charge I organized the Division of Domestic Crop Reports and coordinated the work of the two sections?

Mr. STONE. That is right.

Mr. OLMSTED. And I changed the work from one side to the other and endeavored to increase the efficiency of the clerks so far as I could by bringing more into harmony the work of the two sections, between which there had been some generous rivalry?

Mr. STONE. Yes, sir.

The CHAIRMAN. You mean the county and township sections?

Mr. OLMSTED. We had two sections—the county and township sections—and I assigned Professor Blodgett in charge of the township section, which he still retains. Major Harrison, as my assistant, was in charge of the other section, I having control over the entire division. Is that correct?

Mr. STONE. That is right.

Mr. OLMSTED. In regard to these correspondents you have mentioned, we had about 35,000, including the township and the county. Do you recall that we have also a list of individual farms, numbering 40,000 or 50,000; another list of special crop correspondents, numbering 20,000 or 30,000, and also a list of millers and elevator men that we send to twice a year? Those things escaped you for the moment.

Mr. STONE. Yes, sir.

The CHAIRMAN. Do those all come within his scope?

Mr. STONE. My jurisdiction is not necessarily his. Of course when Mr. Olmsted came there we had those lists.

Mr. OLMSTED. But we took up the township and county lists and eliminated as many of the useless addresses as we could. I merely wished to bring those facts out.

Mr. STONE. Those lists were in the office, of course, when Mr. Olmsted took charge.

Mr. OLMSTED. What I wanted to bring out was the fact that I organized this Division as it now exists, which did not exist before I went there.

The CHAIRMAN. That is, the coordination of the county and township sections?

Mr. OLMSTED. Yes, sir. There were two sections. One had charge of the township schedules and the other had charge of the county schedules. When I went there I organized the Division of Domestic Crop Reports, embracing both sections.

The CHAIRMAN. Exactly in what way did the combination of these two sections increase the work?

Mr. OLMSTED. It simplified the work; it made it more harmonious and rendered the sections capable of doing more work.

The CHAIRMAN. Before that time was there duplication of work?

Mr. OLMSTED. Not at all; but they worked independently of each other; and yet they were all working along the same line—that is, toward the getting of the reports regarding crops.

The CHAIRMAN. When you organized into a division, what change did that make in the personnel?

Mr. OLMSTED. Not any in the personnel.

The CHAIRMAN. Did they continue to get the same kind of information?

Mr. OLMSTED. They did.

The CHAIRMAN. In each instance?

Mr. OLMSTED. In each instance, except that in the computations we had them change from one side to the other, from the county to the township, and vice versa. I did not let it run into a rut, as it had before.

The CHAIRMAN. Were the results that were obtained by the township men turned over to the county men for their revision or addition?

Mr. OLMSTED. Yes, sir; the final sheets were frequently taken from the county section and the computations finished up in the township section, and vice versa.

Another change that was brought into operation was the method of handling these tabulations. I explained that the other day.

The CHAIRMAN. That was for verification, so as to prevent any opportunity of collusion?

Mr. OLMSTED. Yes. That was during my administration of that division.

The CHAIRMAN. That was more particularly, as I understood, in relation to the cotton proposition?

Mr. OLMSTED. No; that was in relation to all speculative crops.

The CHAIRMAN. Does that affect this township section and the county section?

Mr. OLMSTED. Yes; it affects them both.

The CHAIRMAN. But that system was not invented until after Mr. Hyde and Mr. Holmes succeeded in fomenting some trouble?

Mr. OLMSTED. Yes; it was invented before that. I put that system into operation before the cotton scandal was developed.

STATEMENT OF MR. GEORGE R. FERGUSON, AN EMPLOYEE OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

Mr. Ferguson was sworn by the chairman.

The CHAIRMAN. Mr. Ferguson, in what capacity are you employed in the Bureau of Statistics of the Department of Agriculture?

Mr. FERGUSON. I am a fourth-grade clerk.

The CHAIRMAN. A fourth-grade clerk?

Mr. FERGUSON. Yes.

The CHAIRMAN. In what room?

Mr. FERGUSON. In the county tabulating room.

The CHAIRMAN. On county tabulation?

(Witness: Ferguson.)

Mr. FERGUSON. Yes.

The CHAIRMAN. You are in the same room that Mr. Stone has been occupying?

Mr. FERGUSON. Yes.

The CHAIRMAN. How long have you been there?

Mr. FERGUSON. I have been there about twenty years.

The CHAIRMAN. So that you were there when Mr. Olmsted came to the Bureau for the last time?

Mr. FERGUSON. Yes.

The CHAIRMAN. State in your own way what changes, if any, were made in the method of doing business in that office at that time or immediately afterwards.

Mr. FERGUSON. I do not know how to express it. The method of the work was changed slightly in that we were not allowed to finish up our sheets as we had formerly done.

The CHAIRMAN. That is, you did not complete your tabulation in the county section?

Mr. FERGUSON. No, sir.

The CHAIRMAN. They were carried where? Over to what section?

Mr. FERGUSON. They were carried to the chief and he turned them over to other parties. I do not know much about that.

The CHAIRMAN. Were other tabulations brought into your office from other sections?

Mr. FERGUSON. Yes; from the township work. We did the computing of the results largely on our side.

The CHAIRMAN. When was that change made?

Mr. FERGUSON. It was after Mr. Olmsted came. I can not say as to the exact time.

The CHAIRMAN. About how long after, or was it practically contemporaneous?

Mr. FERGUSON. He was the originator of it.

The CHAIRMAN. That may be; but about when, according to your recollection?

Mr. FERGUSON. Three or four months after he came in he commenced those changes, gradually. They were not all made at once; but slowly worked in.

The CHAIRMAN. Was there any other change?

Mr. FERGUSON. Our list was greatly enlarged.

The CHAIRMAN. To what extent, so far as you can tell?

Mr. FERGUSON. As to the county work that I am on, that has not been very much enlarged, because there is one man from every county. That has remained pretty much the same.

The CHAIRMAN. Yes.

Mr. FERGUSON. There were State agents who made their crop report, and the township work was largely increased, probably over half, at that time.

The CHAIRMAN. That is not in your office?

Mr. FERGUSON. It is across the hall. We did the adding up of the results on our side.

The CHAIRMAN. You did the final tabulation?

Mr. FERGUSON. Yes.

The CHAIRMAN. Have you any idea to what extent it was enlarged?

Mr. FERGUSON. Fully one-half, I should judge.

(Witness: Ferguson.)

The CHAIRMAN. With that exception, was there any other additional work done in this room where you were, as compared with what was done before Mr. Olmsted came into the office; and if so, what?

Mr. FERGUSON. I think we did work for the Foreign Markets, the division of this statistical work, and also for the Chemistry Division, which we had not done very much before Mr. Olmsted came over.

The CHAIRMAN. You were relieved of the work of making your computations when this change took place?

Mr. FERGUSON. The final computation?

The CHAIRMAN. Yes, the final computation, and giving the results?

Mr. FERGUSON. But we had the results from Mr. Blodgett's side to finish up, and he had our county work to finish; about the same amount of work.

The CHAIRMAN. Did the work which came into your office which was now in addition to what you had done before exceed the amount of which you were relieved under this arrangement?

Mr. FERGUSON. It was about the same. We worked about the same. We work all the time, and the work has been increasing in the last few years considerably.

The CHAIRMAN. Was there any increase within a few months after Mr. Olmsted came to the Bureau for the last time?

Mr. FERGUSON. Yes; there was considerable work done there that we had not done before. There was the revising of all our lists, and the making over again of the card system, which involved the rejection of the names of dead people and those that had dropped out from other causes—people to whom we had been sending mail for a good many years; that took lots of work.

The CHAIRMAN. Are you not continually revising those lists?

Mr. FERGUSON. We are now; we keep them up to date.

The CHAIRMAN. Had you not always done that?

Mr. FERGUSON. No.

The CHAIRMAN. How long did you let that list run without revising?

Mr. FERGUSON. I could not say, because I was not in charge; but I know we only occasionally went through a case and revised the list; once in a year or two years.

The CHAIRMAN. How often have you done that since Mr. Olmsted came in?

Mr. FERGUSON. They have been revised and put in good shape, and since then we have kept them up. If a man was reported dead, or not working, we immediately took him from the case.

The CHAIRMAN. Did you not do that before?

Mr. FERGUSON. It is my understanding that that was not done. I did not have anything to do with it, but I understood that there was a good deal of dead timber until Mr. Olmsted took charge.

The CHAIRMAN. Prior to that time, as you understand it, they kept a man right on the list?

Mr. FERGUSON. They paid but little attention to it—just let the list go on. That was the condition, I think.

The CHAIRMAN. How long had this Bureau of Statistics been operated on that basis, of proceeding on a list without any reference whatever to the existence or nonexistence of the people on it?

Mr. FERGUSON. I could not tell you.

The CHAIRMAN. So far as you know?

(Witnesses: Ferguson, Miss-Schmidt, Clark.)

Mr. FERGUSON. As I said before, I had not charge of that work.
The CHAIRMAN. No; of course not. Have we anyone here who did have charge of that work?

Miss SCHMIDT. I had; and just as soon as they would write telling us that a man was dead, I would take his name right off the list.

Mr. FERGUSON. This was only my idea which I am giving you that the cases were in bad shape.

The CHAIRMAN. This lady can tell all about it when she comes on the stand. You had not any personal knowledge about that?

Mr. FERGUSON. Only when we came to revising it, I threw out the cards, and lots of times we would often take 10 or 15 cards out of one county.

The CHAIRMAN. All that might be, and still they might have been thinned out years before.

Mr. FERGUSON. I could not say as to that.

The CHAIRMAN. Of course I do not know anything about what the fact was. Is there anybody else except this lady who knows about that?

Miss SCHMIDT. Mr. Clark would know.

Mr. CLARK. I happen to know something about it.

The CHAIRMAN. As far as getting up a list is concerned, or the card catalogue, what did that involve or what is it?

Mr. FERGUSON. We would take a man's name and address and check him up in the township work or in the county work, and then when he reported or when the schedule came in we would check his name as having reported to us; in the county work it was done in the same way; in those two items it made a great deal of work.

The CHAIRMAN. That is practically the list, is it not?

Mr. FERGUSON. Yes; that was our list.

The CHAIRMAN. You speak of revising the list; that involves going over this card catalogue?

Mr. FERGUSON. Yes.

The CHAIRMAN. So that that is practically the same thing, revising your list and bringing the card catalogue up to date?

Mr. FERGUSON. No, sir; revising the list is getting the cards into proper shape. For example, we get a schedule every month from Mr. Jones, and then we have to look up and check Mr. Jones in that month as having reported to us.

The CHAIRMAN. Yes.

Mr. FERGUSON. And at the end of a year if a man fails to report for several months, we send him a notice that he is delinquent in his reports, and we try to get another correspondent.

The CHAIRMAN. You try to get at the list through the card catalogue?

Mr. FERGUSON. Yes.

The CHAIRMAN. I suppose the card catalogue is the list, is it not?

Mr. FERGUSON. No, sir; we have a letter that we send to the postmasters for new names.

The CHAIRMAN. You probably do not understand me, or I do not understand you. Let us see. This list that you revise is the list of your correspondents?

Mr. FERGUSON. In the county work.

The CHAIRMAN. What list do you have of your correspondents unless it is this list of which the card catalogue is the basis?

Mr. FERGUSON. Yes; the card catalogue is the basis.

The CHAIRMAN. That is the list I mean.

Mr. FERGUSON. Yes, sir.

The CHAIRMAN. Is not that the only list you have?

Mr. FERGUSON. In my work—in the work that I am individually engaged on. That is the work I have—on the cards.

The CHAIRMAN. The Department does not keep two lists of the same men?

Mr. FERGUSON. No, sir.

The CHAIRMAN. That is what I mean by the list.

Mr. FERGUSON. Oh!

The CHAIRMAN. And in that sense the list and the card catalogue are substantially one and the same thing, because the card catalogue is one which discloses the men to whom you write?

Mr. FERGUSON. Yes.

Mr. OLMSTED. We have in addition a list of cotton ginnerers, and so forth.

The CHAIRMAN. That is in addition?

Mr. OLMSTED. Yes.

The CHAIRMAN. But you do not keep two lists, one the card catalogue and the other an independent list?

Mr. OLMSTED. No; the card catalogue is the list.

The CHAIRMAN. That is understood, then?

Mr. FERGUSON. I want to make it plain that we have a card list; that we have a county list that we work on, and a township list; also that in the State reporting we have lists, and we have lists of millers and ginnerers. Each of those classes has a list.

The CHAIRMAN. And they are all card catalogued?

Mr. FERGUSON. Yes; they are now.

The CHAIRMAN. And these lists you have been speaking about are just exactly those which you refer to which you revised, and they are what were brought up to date?

Mr. FERGUSON. These lists, now; and under Mr. Olmsted they have increased fully one-half; that is, we get twice the amount of information that we formerly did and tabulate it.

The CHAIRMAN. Do you mean that it has been increased one-half up to date?

Mr. FERGUSON. Yes.

The CHAIRMAN. So that now, in 1907, you have 50 per cent more, or do you mean that in December, 1904, say, you had 50 per cent more?

Mr. FERGUSON. No, sir; it has been getting more all the time, and it commenced about the time Mr. Olmsted reorganized the division and sent out for new names, and we threw out the old names of those who did not report, and from that time on we have been keeping up that list and asking for new names, and it has been increasing every month and every year.

The CHAIRMAN. You say after the division was reorganized. What was there to the reorganization except the arrangement for the completion of the tabulations by the various bureaus of work done by other bureaus and the addition, so far as there were additions, to your list of correspondents?

(Witness: Ferguson.)

Mr. FERGUSON. That was all.

The CHAIRMAN. What was the reorganization outside of that, if anything?

Mr. FERGUSON. No, sir; that was all.

The CHAIRMAN. That is what you mean by reorganization?

Mr. FERGUSON. Yes.

The CHAIRMAN. And in your particular bureau—see if I get it correct—when you completed the tabulations which came from the township section, or some other place—

Mr. FERGUSON. Yes.

The CHAIRMAN. You were at the same time relieved of the tabulations which you had been before that time making?

Mr. FERGUSON. Yes.

The CHAIRMAN. If I understood you correctly, the additional work that you then had was about equal to the work that you had been relieved of; am I right about that?

Mr. FERGUSON. No, sir; not exactly.

The CHAIRMAN. State it just as it is; I do not know what the fact is.

Mr. FERGUSON. We got in late years, probably twice—

The CHAIRMAN. Take 1904, say for the whole year 1904.

Mr. FERGUSON. We got one-third more schedules to tabulate, and that made us more work. It was the same on the other side of the hall, in the township work; they got from one-half to one-quarter more, probably one-half more.

The CHAIRMAN. Than they had been getting?

Mr. FERGUSON. Yes.

The CHAIRMAN. So that the accumulated work was more than the work that you had been relieved of, and added to that work?

Mr. FERGUSON. No, sir; you do not get the idea exactly. We had the work until we got to the final result. Our final result was done on the other side, and their final result was brought over on our side.

The CHAIRMAN. Yes; I understand that.

Mr. FERGUSON. So that we were relieved of doing our own and we did theirs; that is all.

The CHAIRMAN. So far as that is concerned, it did not make any difference; but I understood you to say that you had in addition to that the tabulation work for the Bureau of Chemistry and tabulation work for the Geological Survey.

Mr. FERGUSON. Yes.

The CHAIRMAN. Were those additional to what you had been doing?

Mr. FERGUSON. We never had done it before.

The CHAIRMAN. You never had done it before?

Mr. FERGUSON. No.

The CHAIRMAN. So far as the county and township sections were concerned, one practically offset the other?

Mr. FERGUSON. Only both were increased.

The CHAIRMAN. Yes; both were increased.

Mr. FERGUSON. Yes; it was larger. There was more work.

The CHAIRMAN. That would depend, of course, upon the number of correspondents you had added to your list?

Mr. FERGUSON. Yes, sir.

Mr. OLMSTED. This was the work in addition that we had for the outside offices.

Mr. FERGUSON. Yes; that we had for the outside offices.

The CHAIRMAN. Then in addition to that you did tabulation for the Bureau of Chemistry and the Geological Survey; am I right as to that?

Mr. FERGUSON. And Foreign Markets.

The CHAIRMAN. Foreign Markets?

Mr. OLMSTED. Yes.

The CHAIRMAN. Those additional pieces of work, the increased volume of work that you had, the work that you received from the township section, the revision of the lists, and the bringing of the card catalogue up to date, that is all the extra work done in the room where you were?

Mr. FERGUSON. Yes.

The CHAIRMAN. Did that additional work require the time of one additional man?

Mr. FERGUSON. I should think so.

The CHAIRMAN. You were right there, were you not?

Mr. FERGUSON. Yes.

The CHAIRMAN. Now, did it, as a matter of fact? I do not know what the fact is. Did it?

Mr. FERGUSON. I would have to see who was in our room before. We all worked steadily, and if there were more men in there, and they worked steadily—

The CHAIRMAN. That is the room occupied by the chief, Mr Olmsted?

Mr. FERGUSON. No.

Mr. OLMSTED. He is in the adjoining room to me.

Mr. FERGUSON. Yes; I am in the adjoining room to Mr. Olmsted.

The CHAIRMAN. Oh, I see.

Mr. FERGUSON. I think there were one or two more men placed in our room.

The CHAIRMAN. Did this additional work that was done require the personal attendance and presence of Mr. Olmsted during this year, 1904? Was he there and was he employed all the time? What is the fact about that?

Mr. FERGUSON. When Mr. Olmsted first came there he was there for two or three months continuously, and then for awhile, if I remember rightly, he was there every morning until 9 or 10 o'clock, and then I understood that he was finishing up some business he had outside.

The CHAIRMAN. How long did that continue?

Mr. FERGUSON. I should think it continued for two or three months. I have not any idea, especially.

The CHAIRMAN. What do you say—he would be in until 9 or 10 o'clock?

Mr. FERGUSON. After the clerks were all in, and the reports were made to him.

The CHAIRMAN. What was this, work for the Phillipine census?

Mr. FERGUSON. That is what I understood; I do not know.

The CHAIRMAN. He has already testified that he was employed on the Phillipine census.

Mr. FERGUSON. Yes; finishing up his work. That is the way we put it; finishing up work that he had with the Philippine census, or conferring with the men who were finishing it up, wherever it was.

The CHAIRMAN. You do not know anything about what the work was?

Mr. FERGUSON. I do not know anything about it.

The CHAIRMAN. Is it your understanding that during two or three months—

Mr. FERGUSON. I should think during two or three months he was partially engaged in that work. That is my remembrance of it.

The CHAIRMAN. Is it your recollection that during that time he was at the Department of Agriculture from 9 to 10 and the balance of the day he was employed elsewhere?

Mr. FERGUSON. He was there every morning. I do not know anything about it further than stated above.

The CHAIRMAN. Is it your recollection that he was not there during the balance of the day? What is the fact about that?

Mr. FERGUSON. After the census was completed Mr. Olmsted was there all the time.

The CHAIRMAN. That was not completed until January, 1905?

Mr. FERGUSON. I do not know anything about that; but that was our talk in the office.

The CHAIRMAN. How was it before the census was completed?

Mr. FERGUSON. As I stated, after he would come and open the office and receive his reports, say 9 or 10 or 11 o'clock, he would be gone, and it was reported that he was clearing up and finishing his report for the Philippine census.

Mr. OLMSTED. Would I be gone for the balance of the day or for half an hour occasionally?

Mr. FERGUSON. I could not say, Mr. Olmsted, as to that. It was only that you were away for a part of the time.

Mr. OLMSTED. On some days?

Mr. FERGUSON. We could not tell whether you were in the front room or had gone up to the Census Bureau.

The CHAIRMAN. Are we to understand, or do you wish to be understood, that that was during the period when he was at work on the Philippine census?

Mr. FERGUSON. That is as I understood it.

The CHAIRMAN. You may ask him anything you may desire to, Mr. Olmsted.

Mr. OLMSTED. I do not know that I want to ask you anything except this. You speak of my absence up to 10 or 11 o'clock. Was that a daily occurrence or just occasional?

Mr. FERGUSON. No, sir; not every day. That is not my remembrance.

Mr. OLMSTED. It was not more than two or three times a week?

Mr. FERGUSON. I could not say as to that.

Mr. OLMSTED. Is it not a fact that I was not absent more than half an hour or a quarter of an hour at a time?

Mr. FERGUSON. We could not tell.

Mr. OLMSTED. The thing was, you could not tell whether I was across the hall or in some other part of the office, because I did not stay at my desk all the time; and that is the fact?

(Witnesses: Ferguson, Olmsted, Clark.)

Mr. FERGUSON. I accept it as the fact; that was my understanding.

Mr. OLMSTED. Do you not think that after I reorganized that division and took charge there was a general increase in the efficiency of the clerks?

Mr. FERGUSON. Yes.

Mr. OLMSTED. And a better feeling among the clerks?

Mr. FERGUSON. Yes; there was a good feeling.

Mr. OLMSTED. And the quality and the quantity of the work turned out, was not that increased somewhat?

Mr. FERGUSON. Yes; I think so.

Mr. OLMSTED. It was better than it had been under the previous direction?

Mr. FERGUSON. Yes.

Mr. OLMSTED. I do not think that I care to ask anything more.

STATEMENT OF MR. C. C. CLARK, ASSISTANT CHIEF OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. What is your official position?

Mr. CLARK. Assistant Chief of the Bureau at the present time.

The CHAIRMAN. How long have you held that official position?

Mr. CLARK. Since November, 1905.

The CHAIRMAN. And what position did you occupy before that?

Mr. CLARK. I occupied the position of chief clerk immediately preceding that.

The CHAIRMAN. For how long a time had you occupied that position?

Mr. CLARK. Since July 1, 1903.

The CHAIRMAN. So that from that time, at least, you have been continuously connected with the Bureau?

Mr. CLARK. Yes, sir.

The CHAIRMAN. And have you been in the discharge of substantially the same duties?

Mr. CLARK. No, sir; since being appointed Assistant Chief my duties have been those of Assistant Chief of the Bureau, and the chief clerk's duties have been taken up by my successor as chief clerk.

The CHAIRMAN. That is, latterly your duties have been more of an executive character?

Mr. CLARK. Yes, sir.

The CHAIRMAN. Please state in your own way what change, if any, was made in the methods of doing business in the Bureau after Mr. Olmsted came to the Bureau the last time; that was in April, 1904. We are familiar with the conditions before and with the conditions since.

Mr. CLARK. Yes, sir.

The CHAIRMAN. State it in your own way.

Mr. CLARK. Along in 1903 Mr. Hyde, who was then Chief of the Bureau, was very much disturbed and agitated by the way the statistical computations and compilations were being done in the two different sections.

The CHAIRMAN. That is, the township and the county sections?

Mr. CLARK. Yes. There was also more or less gossip going around the Bureau and there was a lowered degree of morale and discipline.

(Witnesses: Olmsted, Clark.)

The CHAIRMAN. You say "gossip was going around the Bureau." What do you mean by that—that the clerks were gossiping with each other?

Mr. CLARK. Yes; that they were gossiping and passing around stories about each other and the officials, and so forth.

Mr. SAMUEL. What foundation was there for that?

The CHAIRMAN. Oh, my; those things do not have to have any foundation. [Laughter.]

Mr. CLARK. Mr. Hyde discussed it quite often in my presence, and stated frequently that he wished Mr. Olmsted was back. Mr. Olmsted had been Assistant Statistician, I think, in 1902, and Mr. Hyde had a great deal of confidence in him and reliance upon him as an executive, a disciplinarian, and administrator; and when Mr. Olmsted returned from the Philippine Islands, where he had been engaged in assisting in the taking of the Philippine census, Mr. Hyde stated that he wanted to have Mr. Olmsted return to this Bureau, and that he was going to try to get him reappointed in his Bureau. He had been off on leave without pay from our rolls. Mr. Hyde was trying to devise some method of reorganization of the crop reporting and tabulating sections, and decided upon a plan of organizing them into a division to be called the division of domestic crop reports, and he said that Mr. Olmsted would be appointed chief; and Mr. Olmsted was reappointed in the Bureau as chief of that division, according to that plan.

Mr. OLMSTED. Right there, allow me, just a moment. Do you recall that Mr. Hyde made several efforts to have me come back to the Bureau, which I declined three or four times because the work of the Philippine census would not permit me to come back, and finally, the work of the Philippine census having reached a point where I could come back without interference of that work, I agreed to come?

Mr. CLARK. He did not discuss those points with me, but he said that he was endeavoring to get Mr. Olmsted to come as soon as his work in the Census would permit of it.

To return; as one of the examples of demoralization in that Division, I can cite the case of a list of ginners which the Bureau had had for some six or eight or ten years. The Census Bureau had, I think in 1902, been required by Congress to take each year a census of the amount of cotton ginned from time to time during the ginning season. In the preparation of that census they naturally secured the names of all the ginners in the United States through their different special agents, etc. Theretofore, and for a time thereafter, we had had a list in our Bureau of cotton ginners secured by correspondence with postmasters and agents in the South. A comparison of that list with the Census Bureau's list showed that we had about 30,000 "dead ones," as we called them—duplicate names, deceased ginners, ginners who had gone out of business, ginners who had combined their business into one company, and names of five or six members of the same ginning company. In other words, we had had about 30,000 duplicates.

The CHAIRMAN. How many did you have in all?

Mr. CLARK. We had over 60,000 ginners, when the Census had, as they proved at that time and since, a number not to exceed 35,000—

(Witness: Clark.)

nearer 33,000. That was one of the things that decided in Mr. Hyde's mind that something had to be done in reorganizing those lists and increasing the morale of this office.

The CHAIRMAN. Do you know how the Census Department got this information—by correspondence, as you did?

Mr. CLARK. No, sir; they got their information by appointing a paid agent, located in each cotton-producing county of the United States, who is required to report to them the name of every ginner in his county, and who shall be in correspondence and in touch with these ginner by 'phone and by telegraph and by personal visitation. Then, each month, as I understand it, from reading the Census Bureau instructions to special agents and from my understanding of it from having been in the South, they get a report from each ginner whose name they keep on file, and they augment that by a report sent by telegraph every two weeks by their subagent located within those counties.

The CHAIRMAN. Was there anything on file in your department which tended to impeach the accuracy of this list of 60,000 people, by way of correspondence or otherwise, that had not been utilized for the purpose of cleaning up the list? Did anybody look that up, do you know?

Mr. CLARK. We would only get about 15,000 to 20,000 replies from schedules that were sent to 60,000 names, which, of course, indicated that there was something wrong somewhere.

The CHAIRMAN. Was that list gathered together by circulars and correspondence?

Mr. CLARK. Entirely so.

The CHAIRMAN. Is that the way you gather your list now?

Mr. CLARK. In part, so.

The CHAIRMAN. Do you not in the main do so?

Mr. CLARK. Yes, sir; we do in the main, so, principally; but not so much as we did then.

The CHAIRMAN. Did you get the same sources of corrections then as you do now?

Mr. CLARK. With the added safeguard of eliminating very carefully from the lists the names that are obviously those of "dead reporters"—what we call "dead reporters"—not necessarily deceased, but duplicates, and who have not made a report for several months, and so forth.

The CHAIRMAN. The list contains the internal evidence of those defects?

Mr. CLARK. Yes, sir.

The CHAIRMAN. And that list had that same kind of internal evidence?

Mr. CLARK. Yes, sir.

The CHAIRMAN. And this illustration which you have given demonstrates the inefficiency—I suppose you think that is putting it mildly—

Mr. CLARK. The inefficiency of the office that had charge of that list.

The CHAIRMAN. Is that the idea you wish to convey?

Mr. CLARK. I should say the inefficiency of the organization of the sections that had that work and tabulating to do.

(Witness: Clark.)

The CHAIRMAN. You have got to bring it down to somebody. If there was inefficiency in the Division of Statistics, it must have been on account of the failure of somebody.

Mr. CLARK. Mr. Hyde held Major Harrison, the chief of that section, accountable and responsible for it. He (Mr. Hyde) himself had no immediate personal supervision over or connection with the work.

The CHAIRMAN. This gentleman, Mr. Stone, who left here a few minutes ago—is he the man who had charge of this list, one-third of which was worthless?

Mr. CLARK. I do not know whether he had immediate personal supervision of it or not.

The CHAIRMAN. Who did, or do you not remember?

Mr. CLARK. I do not recollect. I do not know. Mr. Hyde and I were acquainted with it through Major Harrison, who was then chief of the section.

To continue. The reorganization of that work and of those different sections into a division embraced not only the revision of those lists, but the establishing of a more condensed, businesslike, and methodical way of doing the entire business of tabulating and computing in the office.

The CHAIRMAN. In what particular?

Mr. CLARK. In the particular of having the tabulation more carefully prepared and cared for; in having the work distributed so that the clerks and tabulators could be kept continuously at work between the times of the tabulations of the crop report, which took up about ten or fifteen days at the first of each month, and also in safeguarding more securely the tabulations; not that I think that there is any necessity of safeguarding them. I do not think that there is any danger of a misuse of the work—

The CHAIRMAN. That is, segregating a part of the counties and having those tabulated by other people so that they do not know what they are tabulating?

Mr. CLARK. Yes; cutting off the sheets and distributing them around to the different clerks. But, as I say, I do not think there is any cause for suspecting any of the clerks there of wishing to take advantage of any of the data that might be contained in any of the tabulating sheets. I know there has no evidence ever been discovered of that, in all the evidence before all the different commissions and committees who have made examinations in connection with our Bureau.

The CHAIRMAN. I do not understand that anybody intimates that.

Mr. CLARK. No, sir.

The CHAIRMAN. As I understand it, this method was adopted as a measure of extra precaution.

Mr. CLARK. Yes, sir.

The CHAIRMAN. And to make it impossible for anything of that kind to occur.

Mr. CLARK. Yes, sir.

The CHAIRMAN. When was that inaugurated?

Mr. CLARK. That was inaugurated in its present form in the summer of 1904; I should say it was being perfected along in May, June, and July, during those tabulating months, when the heaviest crop reporting work comes into the office.

(Witness: Clark.)

The CHAIRMAN. Who inaugurated that?

Mr. CLARK. That was inaugurated under Mr. Olmsted's direction and supervision.

The CHAIRMAN. That is, it was his idea?

Mr. CLARK. Yes. I remember many conferences in relation to it between Mr. Hyde and myself and Mr. Olmsted.

The CHAIRMAN. What have you to say about the increase of work in that Division after Mr. Olmsted came to the Department?

Mr. CLARK. The increase of work was in great part possible by the increased efficiency and working capacity of the office; and by reason of that we took on a great deal of statistical work required by other Bureaus in the Department. We were and are more or less a statistical clearing house for the Department. We found that Doctor Wiley, who was making special investigations as to food products, had a large amount of such work to do, and we were enabled to do a great deal of compiling and computing and tabulating of the results of his tests. The same was true in regard to the Bureau of Forestry. I should say we worked for several months in the tabulation of certain data for the Forestry Bureau. The same is true also in relation to other divisions of the Department.

The CHAIRMAN. When did you begin to do this extra work?

Mr. CLARK. We began to do that some time ago. We had done some of it back in 1903, but it was of small amount compared with that which we took up in 1904, 1905, and 1906.

The CHAIRMAN. Your county and township sections were made a division?

Mr. CLARK. Yes.

The CHAIRMAN. How much was the work done by that division increased by the changes made by Mr. Olmsted, or by the taking on of additional work?

Mr. CLARK. It would be hard to state specifically, because a great deal of that tabulating and extra work that was done for other bureaus passes along to the other bureaus and offices, and we have no record of it. We compute and compile and turn back to those bureaus the results and all the tabulating papers. I recollect in one year I did not only estimate, but computed, according to another plan put into operation by Mr. Olmsted, and a very important one, that we had done \$14,000 worth of computing work for other divisions and bureaus.

The CHAIRMAN. What year was that?

Mr. CLARK. That was in 1905. The plan I speak of is a plan of "cost keeping," as you might call it in bookkeeping, by which each clerk makes a report at the end of each day of the number of hours they have worked, and on what work they have been engaged. Mr. Olmsted inaugurated that plan in 1904, three or four months after he had come in, about July, the beginning of the fiscal year ending June 30, 1905. The daily reports of clerks were carefully recorded and counted in the chief clerk's office and charged against these different "jobs," the clerical service, and cost of materials, and so forth.

The CHAIRMAN. Do you mean by that that the total work done in the Bureau aggregated \$14,000, or that the work you did for these other people aggregated \$14,000?

Mr. CLARK. The work that was done for the other offices amounted to \$14,000.

(Witnesses: Clark, Lundy.)

The CHAIRMAN. That is, you did your work, and then in addition you did this work for other bureaus which aggregated \$14,000, on the basis on which you made your estimate?

Mr. CLARK. Yes, sir.

The CHAIRMAN. Was that done without the addition of any extra force?

Mr. CLARK. That was without the addition of one single clerk.

The CHAIRMAN. What is the cost of the personnel in the Bureau of Statistics a year, roughly speaking; that is, I mean now the people that did that \$14,000 worth of extra work in one year? What are they paid for their regular services?

Mr. CLARK. About \$75,000. That includes the officials.

The CHAIRMAN. No; but I want the operatives that did that work. Can you give me an approximation as to what these employees, who in addition to the regular work did work for other bureaus that was worth \$14,000, receive a year in the aggregate?

Mr. CLARK. I do not recall just now. Mr. Hyde, in one of his reports—

The CHAIRMAN. I want to get the relation which the extra work they did bears to their regular work. Do I make myself clear?

Mr. CLARK. Yes, sir; the clerks who are engaged in the Division of Domestic Crop Reports. I think it was given in the report for 1905.

Mr. LUNDY. I believe that I helped Mr. Clark make this up, and I believe we estimated about \$65,000 for salaries of the operatives exclusively. Then there was \$14,000 of work for other offices exclusive of the material we furnished.

The CHAIRMAN. The material is a negligible factor?

Mr. LUNDY. Yes, sir.

The CHAIRMAN. Then, if I get it right, you had then in this Bureau people who were receiving \$65,000 for their compensation—that is, their ordinary and regular compensation for the duties that they had been discharging for the previous years—and in addition to the work they had been doing they did this extra work which aggregated \$14,000.

Mr. CLARK. I may not be exact there, but I can give you that. It was approximately \$15,000.

The CHAIRMAN. So that practically they were doing 25 per cent more in 1905 than they did in 1904 or in 1903? Do I get that right?

Mr. CLARK. Yes; they were enabled to do that extra work without additional cost.

The CHAIRMAN. I would like to know whether that came about by reason of the fact that Mr. Olmsted was able to get more work out of them or because his arrangement and management was such that their efficiency was increased, or whether, before that time, they were not fully employed? Which of these alternatives was it?

Mr. CLARK. A little bit of all three of those.

The CHAIRMAN. Oh, is that so?

Mr. CLARK. Before that time, while they were probably willing enough, as they always are, the clerks were not fully employed. Before that time the work had not been distributed and placed along in regular order in such a manner that they could do, or did do, as much work, and I believe the result was owing partly to the increased

efficiency and morale of the Bureau under the divisional organization of that work and under the new direction of Mr. Olmsted.

Mr. **OLMSTED**. Will you please explain right here that for about two weeks out of every month our work is of the "rush" kind, and it requires more work than is required during the rest of each month?

Mr. **CLARK**. Yes; I was about to say that our clerks are under great pressure from the 25th of each month until the 10th of the following month, because during that time some 100,000 schedules come in and must be tabulated very quickly and carefully in time to be "digested" and used by the crop reporting board in the preparation of the reports of the 3d and 10th of each month. In the months of cotton reports there is a double tabulation; there is a tabulation of cotton that leads up to the report on the 3d, in addition to the regular crop reports on cereal grains and other crops made on the 10th. Between the 10th and 25th of each month there is a "let down," but back in 1902 and 1903 the clerks did not sit still and fold their hands, but the work was not so distributed that they could accomplish as much as they have later. There is a great deal of work of "filling in" along for a week or so following, until the next report comes along. That is occupied in improving and perfecting lists and in doing other statistical tabulations and work both for our Bureau and other bureaus.

The **CHAIRMAN**. Do these employees now perform this extra and additional service to an extent on the same basis you have indicated for 1905?

Mr. **CLARK**. Yes; they are continuously at work, and hard at work, all the time.

The **CHAIRMAN**. Do we understand that approximately they are doing \$15,000 or \$20,000 worth of extra work; that is, of work for outside offices?

Mr. **CLARK**. We have not done as much work this year for outside offices as we did in 1904 or 1905, but nearly as much.

The **CHAIRMAN**. In that case, is the force fully employed in this period between the 10th and the 25th of each month?

Mr. **CLARK**. Yes; it is employed, because we happen to be doing some more work other than merely crop reporting work ourselves, and we aim to do still more of it, as far as we can get the time and the force, in the preparation of bulletins and special statistical investigations; and we have also largely increased the work on crop reports by addition of a number of crops not formerly dealt with.

The **CHAIRMAN**. With reference to this division, was there work there that kept Mr. Stone and Mr. Blodgett and Mr. Olmsted regularly and continuously employed from the time when Mr. Olmsted went back until the following January, when his employment with the Philippine census ceased, or what was the fact about that?

(At the request of the witness, the stenographer repeated the question.)

Mr. **CLARK**. The question does not clearly bring out what you wish.

The **CHAIRMAN**. Mr. Blodgett and Mr. Stone had their duties, which they were discharging. Mr. Olmsted came to the Bureau. After he came was the work such as to keep Mr. Olmsted continuously employed? These other men kept right on doing what they were

(Witnesses: Clark, Zappone.)

doing and did more. Now, was there additional work that kept Mr. Olmsted busy?

Mr. CLARK. They kept right on doing the same clerical work that they had been doing before, but they did not keep on doing the supervisory work and the initiative work that they had been doing, that had been done before.

The CHAIRMAN. What was the initiative work that they had been doing? Who did that initiative work, Mr. Olmsted?

Mr. CLARK. Mr. Olmsted, in many matters. What I call the supervisory and initiative work was the preparation of bulletins and such work as the initiating of this "cost-keeping" tabulation, the improvements in methods of tabulating, and other such matters as these.

The CHAIRMAN. Was the work of that character of sufficient quantity to keep Mr. Olmsted fully employed and did it keep him fully employed after he went with the Bureau? What was the fact about that?

Mr. CLARK. I should say that it did.

The CHAIRMAN. Was he there all the time; and if not, how much of the time?

Mr. CLARK. I could not say exactly how much of the time. Mr. Olmsted, during the time that he was working on the final completion of the Philippine census, would come to the office always on time, or before 9 o'clock, to receive the reports and the correspondence that would come into that division, and would give his directions and orders; and some few days each week—I can not tell you just how many—he would come into the front office, where I was and where Mr. Hyde was, and say that he was going up to the Census Bureau and would be back at a certain time, stating specifically, a half hour or an hour or two hours—mostly the shorter periods of time. We have two telephones, and occasionally he would come and use the 'phone and telephone up to the Census Bureau. This all lasted, I should say, for two or three months, so that he, during that time, was in direct touch with the Bureau of Statistics personally and in a supervisory character practically continuously. Mr. Olmsted was at that time in as close touch physically with that division as nearly all bureau chiefs are, because Mr. Olmsted is different from some bureau chiefs. He is at the office every morning before 9 o'clock, and he leaves at or after the ring of the bell at 4.30, and always has since he has been in the Bureau.

The CHAIRMAN. You say he is different from some other bureau chiefs. What do the other fellows do? I do not know anything about it. Wherein is he different?

Mr. CLARK. Well, I probably should not make statements along that line.

Mr. ZAPPONE. You mean in other departments?

Mr. CLARK. Yes, in other departments.

Mr. ZAPPONE. He certainly does not mean in the Department of Agriculture.

Mr. CLARK. It is generally accepted——

The CHAIRMAN. I wanted Mr. Clark to state what the facts are. Of course all this goes on the record. We want to get what the fact is. I do not know anything about it. Of course the comparison of Mr.

Olmsted with other bureau chiefs sheds no light for me unless I know what the others do. What is the condition?

Mr. CLARK. Some bureau chiefs may not be as strict in their continuous personal attendance; it is so reported. I have not any specific knowledge or evidence of it, but it is reported that sometimes they are not so strict in their attendance as the clerks necessarily have to be in their attendance. They are probably out of their offices at intervals engaged on work or investigations in relation to their offices; but Mr. Olmsted has always been very strict in his *personal* attendance as an example to his clerks.

The CHAIRMAN. How much of the time did Mr. Olmsted, during this period of three or four months, devote to the Philippine census during office hours at the Department of Agriculture, on the average, if any?

Mr. CLARK. I do not know of any time while he was at the Bureau of Statistics that he was engaged on any other work than Bureau work.

The CHAIRMAN. No, that was not the question. The question was, during office hours how much time did he devote, so far as you could judge, to the work of the Philippine census, if any? I do not know what the facts may be.

Mr. CLARK. That is incorporated in my former reply, that two or three times a week he would leave the Bureau with the statement that he was going to the Census Bureau, and that was with the approval of Mr. Hyde, and he would leave for an hour or a half an hour—from a half hour to an hour and a half at a time.

Mr. OLMSTED. These temporary absences you speak of two or three times a week were always with the consent of the chief of the Bureau, Mr. Hyde, were they not?

Mr. CLARK. They were always with his consent, and they were always after a request for permission to go had been made to him.

Mr. OLMSTED. At that time you were chief clerk of the Bureau?

Mr. CLARK. Yes.

Mr. OLMSTED. Do you recollect this fact, that during that period of two or three months when I left the office in the daytime for those short times, I did not take the annual leave that I might have taken up to within about eighteen days; that is I let about eighteen days of my annual leave lapse, which was more than enough to offset these little temporary absences I was guilty of, two or three times a week, from the Bureau? Do you remember that fact?

Mr. CLARK. I remember the fact that you had taken hardly any annual leave since you had been in the Bureau—nearly all of it was unused. I do not remember just the time.

Mr. OLMSTED. That year my recollection is that I only took twelve days on account of sickness; when I broke myself down and had to stop.

The CHAIRMAN. You have stated the facts as to these absences, in your own statement?

Mr. OLMSTED. Yes.

(Witness: Lundy.)

STATEMENT OF MR. E. J. LUNDY, CHIEF CLERK OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The witness was sworn by the chairman.

The CHAIRMAN. What is your position in the Bureau of Statistics?

Mr. LUNDY. Chief clerk, at the present time.

The CHAIRMAN. How long have you been chief clerk?

Mr. LUNDY. Since November 16, 1905.

The CHAIRMAN. Prior to that, what position did you occupy?

Mr. LUNDY. I had been a clerk in the various grades since I came in, in 1903.

The CHAIRMAN. Were you about the Bureau of Statistics when Mr. Olmsted came to the Bureau in 1904, in April, 1904?

Mr. LUNDY. Yes, sir; I was employed there at that time as clerk.

The CHAIRMAN. In what capacity were you there then?

Mr. LUNDY. I was appointed in July and took my position in August, 1903, as a clerk in one of the lower grades at \$840 per annum, and at the time Mr. Olmsted came there I was still at that salary.

The CHAIRMAN. Where were you at work?

Mr. LUNDY. I was at work in what is called the library at the particular time when Mr. Olmsted came in there. I had been in the front room and also in Mr. Blodgett's section prior to that, but I was in the library at that time.

The CHAIRMAN. Do you have any personal knowledge of the amount of work done in that division before and after Mr. Olmsted came?

Mr. LUNDY. No, sir; I have not, except in a general way. When I first came in there I did some tabulation work on the township sheets, which work was in Professor Blodgett's section, and I also did some compilations and computations on some other statistical work which was being done there. After I had been there three or four months I was taken off of the statistical work, except during the periods in which we made the crop reports, and my work was changed to the charge of stationery, straightening up the storeroom, superintending the printing of circulars and schedules, and things of that kind, although I continued to tabulate during the crop-reporting period. All the knowledge I have of the increase of work being done is that there was an increased amount of printing that was being done. For instance, we have one schedule which we send out to postmasters, and the number of those schedules printed was increased probably one-half. Those schedules are used for the purpose of getting new correspondents. Then we have a certain color of schedule on our township lists, which we send to new correspondents; that was 4,000—had been from July, 1903, up to April, 1904. About May or June, 1904, it was increased to 5,000 and continued to increase gradually during the year until we printed 8,000 of those each month. The entire township list was increased about the same amount—two, three, or four thousand each month. I also know there were schedules printed that had never been printed before that time; that schedules were revised; that there was more printing, and that there were more stationery and more schedules which were used for revision of lists and in correspondence and other reporting than had been used at that time. The State that I tabulated increased up to August, 1904, when I quit working on it. That was the State of Texas, and it increased

(Witnesses: Olmsted, Lundy, Clark.)

right along. Whether the others increased that much I do not know. I have not much personal knowledge on that subject, because I have not had a great deal to do with it.

The CHAIRMAN. What do you know of the presence of Mr. Olmsted during office hours from April, 1904, to January, 1905, when his connection with the Philippine census ceased?

Mr. LUNDY. I can shed very little light on that, because of the fact that I was in the library for probably a year after Mr. Olmsted came there, and the library is a room which is on the opposite side of the hall, and what we call back, down the hall from the entrance where Mr. Olmsted is. I have gone in to see Mr. Olmsted about the printing of some schedule or other matter and have been told that he was out of the building, and on four or five occasions they understood that he was over at the Census, and on two or three occasions I have happened to be in the front room when Mr. Olmsted would tell Mr. Hyde that he was going to the Census; but beyond that I have no personal knowledge, because I was rarely in that portion of the building unless I was called up there.

The CHAIRMAN. So that you had no occasion to know?

Mr. LUNDY. No, sir; unless I had some consultation with Mr. Olmsted.

The CHAIRMAN. That is all that I want to ask you. Have you some further statement that you want to make yourself?

Mr. LUNDY. None that I know of.

ADDITIONAL STATEMENT OF MR. VICTOR H. OLMSTED, CHIEF OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

Mr. SAMUEL. Will you kindly explain the occasion for what occurs to me as the rapid promotion of Mr. Lundy from a clerk of class 1 up to class 4?

Mr. OLMSTED. Yes; I will explain it to you. I do not remember the dates of his promotions. Mr. Lundy was promoted, I believe, and when I came there he was getting \$1,400.

Mr. CLARK. One thousand two hundred dollars.

Mr. OLMSTED. He was made assistant to the chief clerk of the office, who was then Doctor Clark, and was given \$1,400, his duties being enlarged and his work increased. He developed great capacity. In fact, he showed such marked ability that when Doctor Clark was made assistant chief of the Bureau, Mr. Lundy was the best, most available man to make chief clerk. He had been trained to the duties of the position under Doctor Clark and he performed them just as well as anybody possibly could.

In the interim, while he was assistant to Doctor Clark, the work had increased, due to the increase of the work of the Bureau, and he had much more to do than Doctor Clark had had to do when he was chief clerk. There is really 50 per cent more work there to be done now. As we called on him to perform the duties of this position, and as the work increased largely, we thought that it was only right that he should have the salary. I was not then statistician, but I was glad to concur in it and glad that we had a man in the division who did not require any training, but who knew what the duties were and could perform them. His promotion was rapid, but it was a deserved promotion, and the duties he performed required the money. He

(Witnesses: Olmsted, Clark, Graham.)

was the only available man that we had for the position. It was a statutory position, and he was the only available man we had for the position in the office, and we put him in the position, which necessitated the paying him of that salary.

Mr. SAMUEL. I did not intend any criticism.

Mr. OLMSTED. No; it is a very natural and proper inquiry to make.

Mr. SAMUEL. It was a rapid promotion, and I wondered how it came about.

Mr. OLMSTED. Yes; it was a rapid promotion. But he was the only man trained for the position, and it was a statutory position. Congress had provided for a chief clerk at \$1,800; he was the man for the place, and we gave him the place, and he got the salary.

The CHAIRMAN. If he can perform the duties, it is all right.

Mr. OLMSTED. Yes; he does perform them perfectly, and the duties have increased as the work of the Bureau has grown, and they continue to increase.

The CHAIRMAN. I notice that some of these people here are spoken of as professors and doctors. Have those titles any special significance?

Mr. OLMSTED. My idea is that Professor Blodgett was formerly a professor in some institution of learning. I have known him for twenty-five years, and he has always had that title. We have some doctors. I do not think they are doctors of medicine, necessarily, but the title has been given them because of some collegiate degrees which they have taken. I do not know that we have a single doctor of medicine in the office. Have we [addressing Doctor Clark]?

Mr. CLARK. Not now.

Mr. OLMSTED. Doctor Clark is a doctor of laws. He graduated in law and took a post-graduate course. Mr. Lundy is also a graduate in law. He is studying. He studies at night, or has done so in the past.

The CHAIRMAN. I think that covers everything that we want to know.

At 5.45 o'clock p. m. the committee adjourned until Friday, February 1, 1907, at 2 o'clock p. m.

STATEMENT OF MR. H. C. GRAHAM, AN EMPLOYEE OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The witness was sworn by the chairman.

The CHAIRMAN. You are employed in the Bureau of Statistics?

Mr. GRAHAM. Yes.

The CHAIRMAN. In what capacity?

Mr. GRAHAM. Clerk of class 2.

The CHAIRMAN. How long have you been employed there in that capacity?

Mr. GRAHAM. I have been a clerk of class 2 for about a year.

The CHAIRMAN. And prior to that were you in the Bureau?

Mr. GRAHAM. Yes.

The CHAIRMAN. In what class?

Mr. GRAHAM. I came from a thousand dollars up to class 2.

The CHAIRMAN. That is—

Mr. GRAHAM. One thousand four hundred dollars.

The CHAIRMAN. What duties have you been discharging?

(Witness: Graham.)

Mr. GRAHAM. I have been working on the county work more than anything else.

The CHAIRMAN. The county matter as distinguished from the township matter?

Mr. GRAHAM. Yes.

The CHAIRMAN. Under Mr. Stone?

Mr. GRAHAM. Yes; I was there under him.

The CHAIRMAN. Have you been there with him for several years?

Mr. GRAHAM. Yes.

The CHAIRMAN. Prior to 1904?

Mr. GRAHAM. I was there about a year before that.

The CHAIRMAN. Prior to 1904?

Mr. GRAHAM. Yes, sir.

The CHAIRMAN. And were there any additional employees in the county work under Mr. Stone in 1904, except that Mr. Olmsted was in the office?

Mr. GRAHAM. Not that I know of.

The CHAIRMAN. What can you say as to the work that was done in the county and township divisions which furnished employment for additional men—that is, was there work which required the attention of Mr. Olmsted; and, if so, did Mr. Olmsted render that attention?

Mr. GRAHAM. I was employed in the Census Office before I went to the Department of Agriculture. There they had been very strict in their discipline, and when I first went to the Agriculture Department, under some of the predecessors of Mr. Olmsted, the discipline was to my mind very lax; but there was a great change in the discipline after Mr. Olmsted came. It was more on the order of that to which I had been accustomed at the Census Office.

The CHAIRMAN. That is to say, you had discipline instead of not having it?

Mr. GRAHAM. Yes.

The CHAIRMAN. What do you say about the presence or absence of Mr. Olmsted from the time you went into the Bureau, in April, 1904, while he continued with the Philippine census, during office hours?

Mr. GRAHAM. I could not say much as to that. There have been times when he was away from his desk, and I would hear some clerk say that he had gone to the Census Office. I know, at the same time, that I have heard the clerks say that he did not take nearly all of his annual leave, but how much time he took I do not know. I do not know anything about it.

The CHAIRMAN. You were not in his room?

Mr. GRAHAM. Right next to it; in the adjoining room.

The CHAIRMAN. But you would not be able to state one way or the other?

Mr. GRAHAM. No, sir; I did not miss him to amount to anything myself.

The CHAIRMAN. What sort of work did Mr. Olmsted do while he was there in the Bureau from April, 1904, to January, 1905?

Mr. GRAHAM. I should say general supervision; overlooking all of the sections.

The CHAIRMAN. The county and township sections?

Mr. GRAHAM. I would say he took in all of those lines—the county, the township, the ginners and millers, the elevator men, and cotton.

The CHAIRMAN. These are all covered by those two sections?

Mr. GRAHAM. Yes; virtually by those two sections.

The CHAIRMAN. By whom was that work done before he went there, if by anybody?

Mr. GRAHAM. The discipline was so lax that there were some of those lists that had never been revised for six or eight or ten years, as it turned out, and fully half of the lists were worthless. Of course who was in direct charge of those lists I do not know, at that time. It seems like there were three or four people who would claim control over some of the lists. The worst lists we had were the lists of ginners and millers and elevator men.

The CHAIRMAN. Are those the lists that have been spoken of?

Mr. GRAHAM. Yes; the ginners.

The CHAIRMAN. As being 30 per cent out of the way.

Mr. GRAHAM. Yes.

The CHAIRMAN. I think that was the list that had 20,000 names wrong out of 60,000.

Mr. GRAHAM. Yes.

The CHAIRMAN. I do not think that I have anything further to ask you.

STATEMENT OF MR. J. G. PEPPER, AN EMPLOYEE OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The witness was sworn by the chairman.

The CHAIRMAN. Are you employed in the Bureau of Statistics?

Mr. PEPPER. Yes.

The CHAIRMAN. In what capacity?

Mr. PEPPER. I am a clerk of class 2 at present.

The CHAIRMAN. How long have you held the position of clerk of class 2?

Mr. PEPPER. Just about a year.

The CHAIRMAN. And what was your position before that?

Mr. PEPPER. Clerk of class 3. On September 6, 1905, I was reduced to class 1; on February 3, 1906, I was promoted to class 2, which grade I now hold.

The CHAIRMAN. And how long have you been employed in the Bureau?

Mr. PEPPER. Since the 26th of April, 1903.

The CHAIRMAN. 1903. What were you doing in 1904—what kind of work?

Mr. PEPPER. Everything.

The CHAIRMAN. In connection with township or county work?

Mr. PEPPER. At that time the county and township; sometimes one and sometimes the other.

The CHAIRMAN. Do you mean to say that the work you were doing in 1904 was interchangeable between the two?

Mr. PEPPER. Yes; I mean by that that I was not one of the regular tabulators; but on the crop reports, before the change was made, I would work on the footings, help to ascertain the averages, and sometimes I would help on the county and sometimes on the township reports.

(Witness: Pepper.)

The CHAIRMAN. So that you worked interchangeably between the two sections?

Mr. PEPPER. Yes; I worked interchangeably between the two sections, and in the absence of the regular tabulators I would sometimes tabulate the county work, and in the same way I would sometimes tabulate the township work.

The CHAIRMAN. What can you say about any changes of methods or increase of work or otherwise that occurred in the Bureau after Mr. Olmsted came? State it in your own way, whatever there is about it.

Mr. PEPPER. I do not recall any particular change in the work, except that there was an improvement in discipline. Mr. Olmsted seemed to take charge of the thing and run it more according to the one-man power. By "one-man power" I mean that there was some responsible head more than there had been before. Before that time if anybody had been in charge of any one of the sections he might have authority one day, and it might be taken away from him on the next. That is, the statistician would not always back up the responsible section chief. After Mr. Olmsted came it was not that way, but, to use a slang phrase, "whatever Mr. Olmsted said, went."

The CHAIRMAN. What change was there in methods?

Mr. PEPPER. I do not recall any change of methods at all—that is, any change of method of getting the reports; but I know that until late in the year 1904 there was no change made in getting the final averages. I would like to state that for the reason that there had been some talk about somebody copying off and keeping a record of the State averages, and Mr. Hyde asked me if there was not some way by which that could be avoided and prevented, and I evolved a scheme, which is in operation now, of dividing the sheet and segregating the totals and the final averages. In other words, a clerk may take a sheet like this [indicating], tabulate a portion of the counties, and find a partial total; then, before the final averages and totals are found, the remaining counties are tabulated, but not footed. These remaining counties are then cut off—that is, the figures only—and there is nothing on the sheet that will show the clerk to what State that sheet belongs. He has simply a body of figures there, with the partial footing at the top, and it is impossible for that man to know what the averages of that State are.

The CHAIRMAN. That is the method of tabulation described here?

Mr. PEPPER. Yes, that is the method of tabulation described here, and was adopted between September and November, 1904, as the books in the division will show, because by order of the secretary there was \$100 worth of perforated sheets ordered for that work. That was afterwards changed by Mr. Olmsted, but as I understand the plan has the same effect.

The CHAIRMAN. You were backwards and forwards in these rooms yourself?

Mr. PEPPER. No, sir; I was doing work sometimes for one side and sometimes for the other, but my desk was in the room where Mr. Olmsted's desk was.

The CHAIRMAN. Then your physical location was not changed by the change in your work?

(Witnesses: Olmsted, Pepper, Miss Burch.)

Mr. PEPPER. It was not changed with the exception of five or six weeks when I was in the field.

The CHAIRMAN. What can you say about the presence or absence of Mr. Olmsted from April, 1904, to January, 1905; that is, during office hours of the Department?

Mr. PEPPER. To the best of my recollection he would average about an hour or an hour and a half or two hours a day about three or four days in the week.

The CHAIRMAN. Let me see if I understand that. Do you mean that he would be present at the Department only three or four days during the week?

Mr. PEPPER. No, sir; I said from one and a half to two hours.

The CHAIRMAN. Each day?

Mr. PEPPER. He would be absent for that long, on an average, two or three days in the week, or four.

The CHAIRMAN. He would be absent for half an hour?

Mr. PEPPER. He would come to the office and go through his correspondence, and then, as I recollect it, about 10 o'clock he would leave the office and be gone an hour and a half or two hours. I should say that an hour and a half would be probably an average of his absence.

The CHAIRMAN. That would be about two or three days in the week?

Mr. PEPPER. Yes, on an average. I want to say further than that, that five weeks of that time, or six weeks of that time, I was in the field.

The CHAIRMAN. Yes.

Mr. PEPPER. But while I was there that was my recollection of it.

The CHAIRMAN. That is all I have to ask.

Mr. OLMSTED. I want to ask one question: During these absences of an hour and a half two or three days in the week, were you sure that every time I was at the Census Office?

Mr. PEPPER. No; you might have been some place else.

Mr. OLMSTED. I might have been across the hall, attending to the work there?

Mr. PEPPER. Yes.

Mr. OLMSTED. You mean that I was absent from my desk for an hour and a half or two hours a day two or three times a week?

Mr. PEPPER. Yes.

Mr. OLMSTED. That is all.

STATEMENT OF MISS LILLIAN BURCH, AN EMPLOYEE OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The witness was sworn by the chairman.

The CHAIRMAN. What is your position?

Miss BURCH. I am stenographic and correspondence clerk.

The CHAIRMAN. In whose office?

Miss BURCH. In the Division of Domestic Crop Reports.

The CHAIRMAN. And under whom do you directly act?

Miss BURCH. The chief of the Division of Domestic Crop Reports.

The CHAIRMAN. You are in Mr. Olmsted's room?

(Witness: Miss Burch.)

Miss BURCH. No, sir; under the chief of the Division of Domestic Crop Reports now. Mr. Olmsted is chief of the Bureau.

The CHAIRMAN. Yes; exactly.

Miss BURCH. There are several divisions.

The CHAIRMAN. In 1904, when Mr. Olmsted came in, he occupied this position of chief of the Division of Domestic Crop Reports. Am I right about that, and were you then in his room?

Miss BURCH. When Mr. Olmsted came to the Bureau, the 1st of April, 1904, I was in that room and was designated at that time to be his stenographer, and took the desk next to him when he came into the room.

The CHAIRMAN. How long did you remain in that position?

Miss BURCH. I remained in that position up to the present time.

The CHAIRMAN. You are still there?

Miss BURCH. Yes.

The CHAIRMAN. So that you were with him continuously while he was chief of the division?

Miss BURCH. Yes, sir; I was with him continuously while he was chief of that division.

The CHAIRMAN. What can you say about the duties that he had to discharge there that occupied him in the Department, and the time that he put in during office hours?

Miss BURCH. I do not see how much stress can be laid upon that, for I missed Mr. Olmsted very little from his duties in the Division. It seems to me he was never absent in the morning at 9 o'clock, but I do recall his leaving the office occasionally during the week for a short period of time. I can not remember whether he was away an hour and a half or two hours, but I know if he went in the forenoon he was always back by 1 o'clock. I can not recall a single time that he was away in the forenoon and remained away in the afternoon.

The CHAIRMAN. So that there would not be any time that he would be away over an hour or an hour and a half, according to your recollection?

Miss BURCH. No, sir.

The CHAIRMAN. And what sort of work did the chief of the Division have to do at that time?

Miss BURCH. At that time there was a sort of reorganization of the office, I may say, because there was this new Division being created, and of course Mr. Olmsted had a good deal of work that was purely original on his part, and work that required a great deal of thought, and of course I can not tell you just how much real work he had to get down and do. He was employed thinking about the office and its reorganization all the time, I could see that. He was much taken up with the Bureau of Statistics. His work in the Bureau of the Census, I think, took very little of his thought, but it may have taken a little of his time. His real work was here, and he had much to do in reorganizing or creating this new Division of Domestic Crop Reports, and bringing the work, bringing the lines of work, into distinct lines, you know, and assigning proper clerks to proper work.

The CHAIRMAN. That is, he was getting his work systematized.

Miss BURCH. Yes; he was systematizing the work.

(Witness: Miss Schmidt.)

STATEMENT OF MISS FLORA SCHMIDT, AN EMPLOYEE OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The witness was sworn by the chairman.

The CHAIRMAN. You are employed at the Bureau of Statistics?

Miss SCHMIDT. Yes, and I sat right next to Mr. Olmsted all the time he was there.

The CHAIRMAN. What are you doing?

Miss SCHMIDT. I am on the county work; I have one book and I make out the sheets for the townships on the cotton, that is, I put the weights in, and this lady who will follow me makes out the forms, and we are always employed.

The CHAIRMAN. What was he doing at that time?

Miss SCHMIDT. He was doing the work. He was not away. We would have to ask him all sorts of things, and he was busily employed all the time.

The CHAIRMAN. You have made some suggestion about a list.

Miss SCHMIDT. When this township list was organized—you know of course the grangers requested this work to be organized; that was about 1897, I think. Previous to this I had been for about eleven years assistant in charge, and at some times wholly in charge of that section.

The CHAIRMAN. That is the county section?

Miss SCHMIDT. No, sir; that was the other section, the township section. Then they organized the township work. We did the county and township both, and we had the foreign market work, and they organized that. Then when they took the township work, I had charge of the lists for some time. The schedules come in every month for the township work. Then if a man would report and say that he had moved, and so on, we would immediately attend to that. That was our first work every month after the tabulation.

The CHAIRMAN. That is, you would cut him out of the list?

Miss SCHMIDT. Yes; we would cut him out of the list or change his address. We do the same thing now. We have been very, very careful about it. Then when a man would die and they would send us word, we would immediately drop him. That was on the township work, you understand.

The CHAIRMAN. Yes.

Miss SCHMIDT. But on the cotton work we skip several months. It is only in cotton months that we work on the cotton work, and they keep that cotton list in another room, and really no one seemed to take charge of that, and when I spoke the way I did, it was in regard to the township work. We have always been very careful of that township list, as Mr. Olmsted knows.

The CHAIRMAN. Do you have any personal charge of this ginners' list?

Miss SCHMIDT. No, sir; I do not think anyone had particular charge of that, and when Mr. Olmsted came in he took charge, and then it was corrected, and I think the Census have it now.

The CHAIRMAN. What do you say about the amount of time that Mr. Olmsted spent in the Bureau from April, 1904, to January, 1905?

Miss SCHMIDT. Just as the others have said; he would go away a little while, and he would say, "I will be gone a short time," and some-

(Witnesses: Olmsted, Miss Schmidt, Zappone, Miss O'Donoghue.)

times he would say, if we needed him in that time he was away to telephone to the Census Office. I have heard him say that a couple of times.

Mr. OLMSTED. Yes.

Miss SCHMIDT. He was away very little that I can remember.

The CHAIRMAN. Then your idea is that his census work did not substantially interfere with his work in the Bureau?

Miss SCHMIDT. Decidedly not; no. And I think Mr. Olmsted has reorganized—he has been very strict with us. He would make us work all the time.

The CHAIRMAN. Has he eliminated these gossiping elements that prevailed at one time?

Miss SCHMIDT. I think that was too bad.

The CHAIRMAN. You think our friend rather drew on his imagination?

Miss SCHMIDT. Yes; I think he did.

Mr. ZAPPONE. Mr. Chairman, I think Doctor Clark's remarks as to gossip in the Bureau should be stricken from the record.

STATEMENT OF MISS CLARA O'DONOGHUE, AN EMPLOYEE OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The witness was sworn by the chairman.

The CHAIRMAN. Are you at work in the Bureau of Statistics?

Miss O'DONOGHUE. Yes, sir; I am.

The CHAIRMAN. In what capacity?

Miss O'DONOGHUE. Clerk of class 2.

The CHAIRMAN. How long have you been so?

Miss O'DONOGHUE. Nineteen years.

The CHAIRMAN. And are you with the Division of Domestic Crop Reports?

Miss O'DONOGHUE. Yes.

The CHAIRMAN. How long have you been in that division?

Miss O'DONOGHUE. I have always been in that division.

The CHAIRMAN. All the time?

Miss O'DONOGHUE. Yes.

The CHAIRMAN. You were there when Mr. Olmsted came to the division?

Miss O'DONOGHUE. Yes; and in his room.

The CHAIRMAN. How much of the time did Mr. Olmsted spend there after he came there in April, 1904, up to 1905?

Miss O'DONOGHUE. I think he spent most of his time there. Once in a while he would go out, but I do not know whether he was in the other room or out. Sometimes he would be gone half an hour or an hour, or something of that kind; but I did not inquire where he had gone; so that I do not know.

The CHAIRMAN. Was the character of the work such as required his attention?

Miss O'DONOGHUE. Yes; I think that it has improved very much since he came to us. That is to say, he disciplined us greatly and kept us busy.

The CHAIRMAN. Was the quantity of the work that was needed to be done after he came there in excess of that which was done before?

(Witnesses: Olmsted, Miss O'Donoghue, Mrs. Noah.)

Miss O'DONOGHUE. Yes, it was in excess.

The CHAIRMAN. In what particular was the excess?

Miss O'DONOGHUE. You mean what class of work?

The CHAIRMAN. Yes.

Miss O'DONOGHUE. It was on broader lines and increasing the general work, and, as I say, there was a great deal more work getting up the report, for instance; we had a great deal more work on that. Of course, cutting off the sheets and mixing up the thing as it has to be done keeps us very busy.

The CHAIRMAN. When was this cutting off of the sheets and mixing up inaugurated?

Miss O'DONOGHUE. I am not good at dates, but I think it was about the time he came.

Mr. OLMSTED. It was a few months afterwards.

Miss O'DONOGHUE. Yes, somewhere along there.

STATEMENT OF MRS. ESTHER NOAH, AN EMPLOYEE OF THE BUREAU OF STATISTICS, DEPARTMENT OF AGRICULTURE.

The witness was sworn by the chairman.

The CHAIRMAN. Are you employed in the Bureau of Statistics, Mrs. Noah?

Mrs. NOAH. I am.

The CHAIRMAN. In what capacity?

Mrs. NOAH. Clerk.

The CHAIRMAN. How long have you been employed there?

Mrs. NOAH. Since July 6, 1898.

The CHAIRMAN. And where have your services as clerk been rendered—in connection with what section or division?

Mrs. NOAH. I am in Mr. Blair's section.

The CHAIRMAN. He is now superintendent of the Division of Domestic Crop Reports? That is the division that was organized when he went into the Bureau?

Mrs. NOAH. Yes.

The CHAIRMAN. The last time?

Mrs. NOAH. Yes.

The CHAIRMAN. Where were you when Mr. Olmsted went into the Bureau the last time?

Mrs. NOAH. I was in the room with Mr. Olmsted.

The CHAIRMAN. In the same capacity as you are now employed?

Mrs. NOAH. Yes, sir; in the same capacity.

The CHAIRMAN. What have you to say as to the amount of work that was done in the Bureau, so far as you know, after Mr. Olmsted came in, as compared with the work done before he came in?

Mrs. NOAH. I know we are kept very busy now, and before that we were not so very busy. There were times when there was a little leisure, but now we are very busy, and we keep a daily record of the time and the class of work that we do.

The CHAIRMAN. Did the work of the division require the personal attention of Mr. Olmsted after he came there and organized it?

Mrs. NOAH. It did, and he was there all the time with the exception, as others have stated, of those times when he was at the Census Bureau directing the Philippine census.

(Witnesses: Olmsted, Mrs. Noah, Miss Schmidt.)

The CHAIRMAN. Yes.

Mrs. NOAH. We used to joke with Mr. Olmsted because he had so much time left at the end of the year. We used to say, "Mr. Olmsted, give us some of your time." Do you remember that, Miss Schmidt?

Miss SCHMIDT. Yes.

The CHAIRMAN. Not being in the habit of making speeches, I do not suppose that he could pass the time over to you?

Mrs. NOAH. Not very well.

The CHAIRMAN. Then your recollection as to his absence agrees substantially with what these other witnesses have stated?

Mrs. NOAH. Yes.

The CHAIRMAN. Was the work there to be done of such a character as really required his attention?

Mrs. NOAH. It did.

The CHAIRMAN. What do you say about that?

Mrs. NOAH. I say it did.

The CHAIRMAN. You think it did?

Mrs. NOAH. Yes; and he gave it his attention. I must say right here that Mr. Olmsted is the right man in the right place, and that the Bureau is now in a healthy condition. It is all right.

Mr. OLMSTED. Thank you.

The CHAIRMAN. We are glad to know that.

FOREST SERVICE.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., January 30, 1907.

The committee met at 10 o'clock a. m.

Present: Messrs. Littlefield (chairman) and Samuel.

Present also: Mr. Gifford Pinchot, Forester, Department of Agriculture; Mr. Overton W. Price, Associate Forester, Department of Agriculture, and Mr. A. Zappone, Chief of Division of Accounts and disbursing clerk, Department of Agriculture.

STATEMENT OF MR. GIFFORD PINCHOT, CHIEF OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You are the Chief of the Forest Service?

MR. PINCHOT. Yes.

The CHAIRMAN. Is that a division or a bureau?

MR. PINCHOT. It is a bureau.

The CHAIRMAN. How long has it been a bureau?

MR. PINCHOT. It became a bureau on July 1, 1901.

The CHAIRMAN. How long have you been connected with it?

MR. PINCHOT. Since July 1, 1898.

The CHAIRMAN. Were you at the head of it then?

MR. PINCHOT. I became the head of it July 1, 1898.

The CHAIRMAN. And it was then a division?

MR. PINCHOT. It was then a division.

The CHAIRMAN. It was raised from a division to a bureau in 1902?

MR. PINCHOT. In the fiscal year 1902. Then, on July 1, 1905, it became the Forest Service, which is its present title.

The CHAIRMAN. What was it originally?

MR. PINCHOT. It was first the Division of Forestry; then the Bureau of Forestry, and is now the Forest Service.

The CHAIRMAN. What is the significance, if any, of those various changes in nomenclature?

MR. PINCHOT. A division is a small organization. The Division of Forestry had an appropriation of \$28,520 when I came in. The appropriation was raised, and the work increased so much that a bureau organization was necessary in order to carry it on effectively; and when the forest reserves were transferred from the Department of the Interior to the Department of Agriculture a still different form of organization became necessary, and it was properly called the Forest Service.

The CHAIRMAN. What is the differentiation between the form of the service before the change to Forest Service and since?

Mr. PINCHOT. Before the change to Forest Service we had charge of no Government forests. We were simply assisting private owners to handle their forests in a conservative way and gathering and disseminating information. After the transfer we became the executive officers in charge of Government property of very large value, and responsible for it.

The CHAIRMAN. That simply involved an enlargement of the scope?

Mr. PINCHOT. A change in direction.

The CHAIRMAN. That is to say, you devote your energies more largely to Government property, as distinguished from private property?

Mr. PINCHOT. That is it.

The CHAIRMAN. And did it result in any change of executive organization?

Mr. PINCHOT. Yes.

The CHAIRMAN. In what way, except by simply enlarging the scope of the work?

Mr. PINCHOT. Before that we had, for instance, no forest rangers, no forest supervisors, no men in charge of Government forests.

The CHAIRMAN. That simply meant an addition to your force?

Mr. PINCHOT. And it meant a different direction to our work. Giving advice about a forest is an entirely different thing from handling the forest yourself. We became a business organization handling Government forests.

The CHAIRMAN. I have not been able to get any very satisfactory information as to the necessity for a change from a division to a bureau. We have found quite a number of instances where divisions have been changed to bureaus, and I think no one has yet been able to explain—at least to my full satisfaction—why it is that the same kind of work, differing perhaps only in amount, can not be done as well under a division organization as under a bureau organization. The impression that has been left, to quite an extent, is that generally it is a question of dignity, character, and style of the office, and an increase in the salaries of the men who mainly have charge of the administration of the office. I would like to have you demonstrate, if you can, how the Government gets any more "value received" from a bureau organization than it does from a division organization, justifying the increased expense involved in the bureau organization as contrasted with the division organization.

Mr. PINCHOT. It rests on the fact that a single man ought to have reporting to him only a definite number of men, say four or five or six or rarely more. A division increased beyond the number of men who ought naturally to report to a chief of division means a clumsy and ineffective organization. Suppose there are enough pieces of work going on in a division to require 15 men to look after them, each responsible for his own particular line of work. Those 15 men will all report to a single chief. He is not able to keep in sufficiently close and effective touch with all of those 15 branches of work to enable him to exercise proper supervision over them. Fifteen are too many. The natural result is that he gets another man

(Witness: Pinchot.)

in below him, or two men, and subdivides those 15 subjects between them. Each of these two men has a handleable number of people reporting to him, and he reports to the chief. Or, better still, the chief takes three men, and each of these has five men reporting to him, which is a very much better number; and these three men report to the chief. That is the difference between a bureau and a division organization. The bureau organization has grown up from these men having become too large a number of individuals engaged in independent lines of work for effectual results under a divisional organization.

The CHAIRMAN. You were the head of the Division prior to July 1, 1901, which was the time of the change to a bureau organization?

Mr. PINCHOT. Yes.

The CHAIRMAN. And you became and also continue to be the head of the Bureau organization?

Mr. PINCHOT. Yes.

The CHAIRMAN. Now, how have you been able to accomplish more results as the head of the Bureau than you accomplished before that time as the head of the Division? If you needed a subdivision, so that five men might be supervised, if you please, by one man, why could not those five men be as well supervised under the division form of organization as under the bureau organization?

Mr. PINCHOT. Because under the division form—assuming this case—I had to supervise the whole 15. There was nobody between me and these men who were actually doing the work.

The CHAIRMAN. But why could you not put them in?

Mr. PINCHOT. I did put them in, as soon as it became a bureau organization. That is the difference.

The CHAIRMAN. Then there is no special distinction except in a subdivision and readjustment of work?

Mr. PINCHOT. The tree has grown another branch; that is all.

The CHAIRMAN. You simply call it a bureau instead of a division?

Mr. PINCHOT. No; it is a definite distinction in organization. In a division every man who is doing independent work reports directly to the chief. In a bureau there are middlemen, each of whom has supervision of a particular line of work, is responsible for the whole of that line of work, and reports to the chief.

I can show you, for instance, our form of organization at present. [Indicating on chart.] If this were a division instead of a bureau the men in all these little boxes, each of which represents a man in charge of a particular line of work, would be reporting directly to the Forester, and I would be swamped with a multiplicity of detail; I could not handle it. But under the bureau organization these men report to their chiefs [indicating], who report direct to the Forester. Similarly the difference between a bureau organization and a departmental organization is that a department is composed of bureaus, just as a bureau is composed of divisions.

The CHAIRMAN. And it is a question of more people and more things done, and therefore the necessity of more detailed organization?

Mr. PINCHOT. That is the whole story. You can not take care of a big undertaking under a division organization, because no man can supervise so many different branches.

Mr. SAMUEL. Could you have made the same subdivision and called it a division?

Mr. PINCHOT. I do not care what you call it. As a matter of fact, it is a bureau. I could not transact my business now under a divisional form of organization.

The CHAIRMAN. That is, you could not transact your business unless you had the same executive methods, with reference to the assignment of men and their supervision and control that you now have under the bureau organization? No matter what you call it you must have that method of organization?

Mr. PINCHOT. You must have that method of organization.

The CHAIRMAN. And simply as a matter of convenience and identification it is called a bureau?

Mr. PINCHOT. That is what it is.

The CHAIRMAN. That is, it is a bureau because the accumulation of work and the increase in the number of men employed have made it impossible for the man at its head to have personal supervision of the men for whom he is responsible, and he therefore has to reach these people through an intermediary or two, as the case may be?

Mr. PINCHOT. Or three or ten, or whatever the necessary number may be; precisely.

The CHAIRMAN. And the element of the increase in the salaries of the men who thus have the control is simply in relation to the additional responsibilities they assume, I suppose?

Mr. PINCHOT. Yes. The men who have charge of divisions and bureaus are, as a rule, ridiculously underpaid, under the present system.

The CHAIRMAN. Right on that point, have you had occasion to examine, in any capacity, either as the head of a bureau or as a member of any other body, this general question of salaries?

Mr. PINCHOT. I have.

The CHAIRMAN. You have been a member of the Keep Commission?

Mr. PINCHOT. Yes.

The CHAIRMAN. And have you had the salary feature more or less under your charge?

Mr. PINCHOT. I have not had it under my special charge. We have all been handling that question.

The CHAIRMAN. You have had occasion to investigate it?

Mr. PINCHOT. Yes.

The CHAIRMAN. Over what period of time has your investigation extended?

Mr. PINCHOT. I have been investigating it with a good deal of care ever since I came into the Government service, but the Keep Committee's investigation of this subject has been prosecuted mainly within the last year. I would like to say at this point, Mr. Littlefield, that I have reached the conclusion, very definitely, that in general the efficiency of an organization, as well as of the men in it, depends on the salaries and promotions, and on the way the salaries and promotions are handled, more than on any other single factor; and therefore I have given a great deal of attention to that question.

The CHAIRMAN. So that that has been a matter of special study with you ever since you have been in the Government service?

(Witnesses: Pinchot, Price.)

Mr. PINCHOT. It has.

The CHAIRMAN. Since 1898?

Mr. PINCHOT. Yes.

The CHAIRMAN. What conclusion have you reached with reference to the question as to whether or not any portion of the men engaged in the Government service receive more or less than the same men would receive in rendering substantially the same service for private parties?

Mr. PINCHOT. The employees in the lower clerical positions are overpaid, as compared with those in the outside business world.

The CHAIRMAN. Would you be able to fix approximately a limit within which the salaries would be called lower—say from \$1,400 down?

Mr. PINCHOT. From \$1,400 down. Would not that be a proper division, Mr. Price?

Mr. PRICE. Yes; \$1,400 down.

The CHAIRMAN. Taking the salaries from \$1,400 down, your opinion, then, would be that the average salary paid to Government employees is larger than that paid to men of the same ability rendering substantially the same service to private parties?

Mr. PINCHOT. Yes.

The CHAIRMAN. And about how much?

Mr. PINCHOT. From a fifth to a third, approximately.

The CHAIRMAN. That would be 20 to 25 per cent?

Mr. PINCHOT. Twenty to 30 per cent would approximate it.

The CHAIRMAN. That conclusion, as I understand it, is the result of a careful study of this question?

Mr. PINCHOT. Yes; but, let me add, there is a reason why that should be so.

The CHAIRMAN. I will come to that a little later. I want you to explain with the utmost fullness all of these points; I want you to give your own views. I understand this, of course, to be a generalization?

Mr. PINCHOT. Yes.

The CHAIRMAN. Of course there may be—and there are, I have no doubt—individual instances scattered all the way through that would not be subject to this general rule?

Mr. PINCHOT. Exactly.

The CHAIRMAN. I would like to have you state, in a general way, what your investigation has been and whether or not you have conferred with other men in the Service and discussed this question fully, so that you are in possession of information that renders your opinion of at least a reasonable value on that point.

Mr. PINCHOT. In the first place, being responsible for the salaries paid in the Division of Forestry, Bureau of Forestry, and Forest Service, I have naturally given a good deal of attention to this matter, realizing, as I have said, that on salaries and promotions depends the efficiency of the clerical force. Secondly, the Keep Committee made a careful study of this matter, through an assistant committee, as well as directly. Questions were sent out to a very considerable number of the larger business establishments of the country asking them to give their scale of salaries for specified positions; and those we compared carefully with the Government salaries paid for similar kinds of work.

(Witnesses: Pinchot, Zappone.)

The CHAIRMAN. About how many inquiries were sent out?

Mr. PINCHOT. Several hundred.

Mr. ZAPPONE. About 200; and we had more than 50 responses.

Mr. PINCHOT. Upon the basis of that investigation the assistant committee prepared a scale of salaries which has been submitted to the President, slightly modified by the Keep Committee itself. So that we think we have gone into the thing with some thoroughness.

The CHAIRMAN. Were you on that committee?

Mr. PINCHOT. I was a member of the Keep Committee. Mr. Zappone was on the assistant committee. These assistant committees were assigned to special subjects and were composed of men outside of the Keep Committee, but in the Government service, chosen for their efficiency in various lines. They made their reports to the Keep Committee, and the Keep Committee worked over them and made reports to the President.

The CHAIRMAN. Was Doctor Galloway on that committee?

Mr. ZAPPONE. No, sir.

The CHAIRMAN. Of how many did that committee consist?

Mr. PINCHOT. Mr. Zappone can answer that question.

Mr. ZAPPONE. It is known as the "subcommittee on personnel" and is composed of the following representatives from the different Departments: Arthur P. Davis (chairman), assistant chief engineer, Reclamation Service; Charles Lyman, appointment clerk, Treasury Department; John C. Scofield, chief clerk, War Department; H. C. Gauss, private secretary to the Secretary, Navy Department; Bayard Wyman, chief of division, Post-Office Department; John W. Holcombe, appointment clerk, Interior Department; A. Zappone, Chief of Division of Accounts and disbursing clerk, Department of Agriculture; George W. Leadley, appointment clerk, Department of Commerce and Labor; and George R. Wales, chief of division, Civil Service Commission.

Mr. SAMUEL. Were those inquiries sent to the cities?

Mr. PINCHOT. All over the country; both cities and outside.

The CHAIRMAN. And these assistant committees, as well as the Keep Committee, are composed of men who are actually in the Government service?

Mr. PINCHOT. Actually in the Government service.

The CHAIRMAN. And who are in personal contact every day with the personnel of the service?

Mr. PINCHOT. Precisely.

The CHAIRMAN. In addition to this information, have you taken occasion to familiarize yourself, in a general way, with the wage conditions as you have been about the country?

Mr. PINCHOT. In a general way. I have always taken an interest in the matter.

The CHAIRMAN. And have you happened upon information that contradicts the conclusion at which you have arrived?

Mr. PINCHOT. No.

The CHAIRMAN. On the contrary, then, does it corroborate it?

Mr. PINCHOT. It corroborates it.

The CHAIRMAN. You have not made any computation of the amount of salaries paid by the Government to employees receiving \$1,400 or less per annum?

Mr. PINCHOT. No.

(Witness: Pinchot.)

The CHAIRMAN. You have no idea, then, as to what proportion of the salary list that would represent?

Mr. PINCHOT. No; but I think it would represent by far the larger part.

The CHAIRMAN. As to salaries above the \$1,400 limit, what is your judgment, in a general way?

Mr. PINCHOT. As the salaries increase beyond that limit, and especially beyond \$2,000, they become very inadequate to the services performed; and the higher the salary the less it represents the value of the service rendered.

The CHAIRMAN. Would you be able to say that that was universal, or that that applied in many instances?

Mr. PINCHOT. I should say that it would apply to nearly all salaries above \$2,000.

Mr. SAMUEL. Does that apply to clerical positions or positions requiring technical knowledge?

Mr. PINCHOT. There are very few clerical positions above \$2,000. They require either executive ability or technical knowledge, or some higher qualification. I should say there are very few positions above \$2,000 which are not underpaid.

The CHAIRMAN. And that is due to the fact, I suppose, that when you get into that area of compensation you reach a class of men who must be experts in the business in which they are engaged?

Mr. PINCHOT. Yes.

The CHAIRMAN. That is, they must be men of either scientific or professional training?

Mr. PINCHOT. Yes.

The CHAIRMAN. In your Bureau, for instance, you must have men who are professional foresters?

Mr. PINCHOT. Yes.

The CHAIRMAN. And those are men whose training and acquirements involved a great deal of preliminary education and drill, before they were able to discharge the duties required of them as professional foresters?

Mr. PINCHOT. Yes. And they must be men of common sense and judgment and integrity, or they won't do, no matter what special qualifications they may have.

The CHAIRMAN. And those qualities you are compelled to develop by experience with the men?

Mr. PINCHOT. By experience with the men, and by dropping out those who do not show that they have them.

The CHAIRMAN. From \$1,400 up to \$2,000 you would have a zone of employment that would not, perhaps, be purely clerical, but could be classed in part as expert, or professional, or scientific; and in that zone what would be your view as to the compensation?

Mr. PINCHOT. I should say that the conditions varied, toward the lower end tending to be overpaid, toward the upper end tending to be underpaid, and passing the neutral point somewhere between those two salaries.

The CHAIRMAN. Could a just result be reached, in connection with any of these salaries, on the basis of a horizontal increase or decrease, except from \$1,400 down?

Mr. PINCHOT. You never could reach an exactly just result by a

(Witness: Pinchot.)

horizontal increase or decrease anywhere; but there is a strong reason why a certain amount of increase should be given in the clerical service.

The CHAIRMAN. Do you mean from \$1,400 down?

Mr. PINCHOT. From \$1,400 down. There ought to be an increase above that, but I am speaking now of the grades from \$1,400 down; taking what roughly may be called the clerical end of the Government's work. The Government pays more for that kind of service than is paid on the outside, in my judgment; but there is very excellent reason why that should be so. In the first place, the Government requires a higher grade of employee than the average business organization, and is not satisfied unless that grade is reached. In the second place, the apportionment by States under the Civil Service Commission means that a very much larger proportion of people in Washington are living away from home, and therefore under extra expense, than is the case in commercial life.

The CHAIRMAN. That would be negatived if they made their homes here, would it not?

Mr. PINCHOT. They can not make their homes here, because they have to be certified from the different States. They had their homes somewhere else first, you see.

The CHAIRMAN. Well, of course they have to change their residence?

Mr. PINCHOT. Yes; and that is always an expensive matter.

The CHAIRMAN. But that only occurs once?

Mr. PINCHOT. Yes; but they come very often from small country towns, or from places where the individual has been living at home, living with relations, under much less expense than is necessary when he comes and lives here in a boarding house. The change to Washington, both in the scale of living and in the absence from home, means on the average an increase of expense which it is fair should be considered. Finally, the Government employee is largely unfitted for any other method of living by the mere fact of his remaining for many years in the Government service. That is, I think, a conclusion which will not be disputed. And as there is no provision for the old age of the Government employee, and as he has become unfitted for other lines of work, there ought to be some provision for a larger scale of salary than he would get outside. I personally am very strongly in favor of some kind of retirement; I do not know yet just what kind.

The CHAIRMAN. Is there not another element involved in the equation, which of course you may have taken into account? Are not the elements of continuity and certainty of employment which the Government employee, as distinguished from the ordinary private employee, enjoys, features that should tend, to some extent, at least, to minimize the compensation he receives?

Mr. PINCHOT. No; because those features carry with them their own corrective. The certainty and continuity of employment are the principal reasons why the Government employee, ipso facto, becomes unfitted for the contest of life and is prevented from making a success in other lines of work after he goes out. He has been taken care of here by "Uncle Sam" until the very idea of getting into the struggle for life outside of the Departments is perfectly dreadful to him.

(Witness: Pinchot.)

I have been astonished over and over again to see how keen is this dread.

The CHAIRMAN. It eliminates the initiative?

Mr. PINCHOT. Absolutely. A man, after he has been in the Government service in a subordinate clerical capacity for a long time, is not good for anything else.

The CHAIRMAN. Still, of course, the elements of certainty and continuity are features, are they not?

Mr. PINCHOT. Features that do him good on one side and do him harm on the other.

The CHAIRMAN. That is right; but, of course, if that injury is done to him, the other feature should be considered, so far as it is entitled to weight, in evening up the equation?

Mr. PINCHOT. Yes; but, on the whole, the disability that follows long Government employment in a clerical position is the more important, in my view.

The CHAIRMAN. Of course, I suppose we have a very large number of people engaged in the occupation of clerks and in parallel occupations in private life and continuously so?

Mr. PINCHOT. Yes.

The CHAIRMAN. Out of which, from time to time, develop men of initiative, character, and ability?

Mr. PINCHOT. Yes.

The CHAIRMAN. But I imagine that the great mass still continue in the clerical employment?

Mr. PINCHOT. Yes; but there is sufficient uncertainty about their life and sufficient competition to keep them fighting, so to speak. In the Government service the tendency is to drop down to a dead level of performance, and to desire above all things to end their lives in a similarly sheltered position.

The CHAIRMAN. Well, do not at least 80 per cent of the people employed in similar occupations outside end their lives as clerks?

Mr. PINCHOT. I do not know; but I know that the dread of change is by no means as great outside as it is in the Government service. For all these reasons, I think it is but fair that the Government should pay slightly higher salaries than are paid on the outside.

The CHAIRMAN. That takes it up to \$1,400. Whether it has reached the limit is, of course, open to discussion.

Mr. PINCHOT. Exactly. I want to add that the Government is not yet paying sufficiently in excess of the salaries paid outside to make the lives of the clerks here as reasonably comfortable as they ought to be. A slight increase is required. That increase the Keep Committee has worked out and recommended; and in 10 bureaus we find that the increase recommended amounts to between 6 and 10 per cent beyond the present salaries paid.

The CHAIRMAN. That is, in the list below \$1,400?

Mr. PINCHOT. No.

The CHAIRMAN. You mean that includes the whole list?

Mr. PINCHOT. That includes the lists up to the end of the clerical grade, as we call it—\$2,100.

The CHAIRMAN. An increase of from 6 to 10 per cent?

Mr. PINCHOT. From 6 to 10 per cent in the salaries now paid.

(Witnesses: Pinchot, Zappone.)

The CHAIRMAN. And that average covers how many different Departments?

Mr. PINCHOT. Ten selected bureaus.

The CHAIRMAN. Taken from various Departments at random?

Mr. PINCHOT. At random.

The CHAIRMAN. Without any special reference to existing conditions?

Mr. PINCHOT. With the idea of getting an average of the situation.

The CHAIRMAN. An average result from conditions as they actually exist?

Mr. PINCHOT. Exactly.

The CHAIRMAN. Beginning with the lower grades of clerks and running up to \$2,100, the judgment of the Keep Committee, taking into account all these various factors that are entitled to consideration as making up the equation, is that the average increase would be from 6 to 10 per cent, which might involve a very much larger increase in some bureaus and perhaps not much of any increase in others?

Mr. PINCHOT. Precisely.

The CHAIRMAN. That is simply an average of those bureaus?

Mr. PINCHOT. Yes.

The CHAIRMAN. Did you find uniformity of conditions as to existing salaries in the various bureaus? I infer you did not.

Mr. PINCHOT. We did not.

The CHAIRMAN. In other words, did you find some bureaus that were practically up to the maximum?

Mr. PINCHOT. Yes.

The CHAIRMAN. Did you find any where salaries were in excess of the maximum?

Mr. PINCHOT. I have forgotten. Do you remember, Mr. Zappone?

Mr. ZAPPONE. No; I do not, Mr. Pinchot. That did not come under the notice of our subcommittee.

Mr. PINCHOT. I do not think there were any.

The CHAIRMAN. None where salaries were in excess, or none where they were really up to the maximum?

Mr. PINCHOT. I think not.

The CHAIRMAN. Then I suppose you found some where salaries were considerably below the maximum?

Mr. PINCHOT. Yes.

The CHAIRMAN. That would indicate that a horizontal raise in connection with those various bureaus would produce very inequitable results?

Mr. PINCHOT. It would.

The CHAIRMAN. And this percentage that you have given us is the result of an actual examination of the existing salaries that are paid?

Mr. PINCHOT. Yes.

The CHAIRMAN. So that it is not predicated upon conjecture, but upon actual existing conditions and mathematical results?

Mr. PINCHOT. Yes.

The CHAIRMAN. These bureaus that you used for the purpose of reaching your generalization were not confined to any one Department either?

Mr. PINCHOT. No.

The CHAIRMAN. Were all the Departments of the Government represented by these bureaus?

(Witnesses: Pinchot, Price.)

Mr. PINCHOT. I am sorry to say I can not answer that.

Mr. PRICE. I think there were three—Commerce and Labor, Treasury, and Agriculture.

Mr. PINCHOT. Mr. Price is secretary of the Keep Committee and is in more direct touch with the details than I am.

The CHAIRMAN. While we are on this question of salaries I would like to have you state, in the first place, whether you have the personal supervision and control of the salaries in your Bureau so far as they are fixed under the lump-sum appropriation?

Mr. PINCHOT. I do, substantially, subject to the approval of the Secretary.

The CHAIRMAN. And do you have the responsibility and control of the men in the service, with reference to the positions that they occupy under the statutory salaries, subject to the revision of the Secretary?

Mr. PINCHOT. I do not understand that question. The statutory salaries are fixed by Congress.

The CHAIRMAN. Yes; but who has the control of the men who occupy those positions, and their appointment and promotion thereto, subject to the revision of the Secretary?

Mr. PINCHOT. I am responsible for them, subject to the revision of the Secretary, and also subject to the rules made by the Committee on Agriculture.

The CHAIRMAN. What rules do they make?

Mr. PINCHOT. Substantially the rule is that no one who is on the statutory roll can be promoted except by the Committee.

The CHAIRMAN. Except by the Agricultural Committee?

Mr. PINCHOT. Except by the Agricultural Committee. No one on the miscellaneous roll can be promoted except by the Committee. That policy continued for any length of time would be fatal to the efficiency of the clerical force in the Forest Service.

The CHAIRMAN. Are we to understand by that that the Committee on Agriculture supervises the personnel of your service on the statutory roll?

Mr. PINCHOT. They have an arrangement with the Secretary of Agriculture by which the Secretary will not approve any promotion, either on the statutory or the miscellaneous roll, except as that promotion is specifically approved by the Committee.

Mr. PRICE. That also operates in cases of demotion.

The CHAIRMAN. For instance, I find, on page 167, Louise T. Harrison, a clerk at \$720. The next grade above that is \$800. Do we understand that Miss Harrison can not be promoted to the \$800 grade unless you first get the approval of the Committee on Agriculture?

Mr. PINCHOT. Unless the Committee on Agriculture makes a change in the statutory roll which permits such a promotion, or unless somebody else on the statutory roll dies or resigns or is promoted, so that a vacancy is made on the statutory roll, we can not promote her.

The CHAIRMAN. Does that mean anything more than this: That here is a clerk at \$800—apparently on this roll there are four clerks at \$800—and until the Committee on Agriculture makes five clerks at \$800 you can not promote Miss Harrison to the \$800 grade unless somebody is promoted out of the \$800 grade or dies?

Mr. PINCHOT. Or resigns.

(Witnesses: Pinchot, Price.)

The CHAIRMAN. Does it mean anything more than that?

Mr. PINCHOT. No; that is what it means.

The CHAIRMAN. If there is a vacancy in one of those four positions, you can promote whoever you think ought to be promoted, without any reference to the Committee on Agriculture, subject to the final approval of the Secretary?

Mr. PINCHOT. Yes.

The CHAIRMAN. Then your statement simply comes to this—that you have no power to increase the number of clerks at certain grades without the approval of the Agricultural Committee? For instance, suppose you have 4 clerks at \$800, 5 clerks at \$900, and 10 clerks at \$1,000. You can not have any more than 10 clerks at \$1,000 unless the committee authorizes the creation of additional clerkships at that rate. That is it, is it not?

Mr. PINCHOT. Yes; that is one part of it.

The CHAIRMAN. Now, what is to hinder, under existing conditions, your promoting all along through these grades whoever you like, so long as there are openings or opportunities in the grades above to move the clerks up?

Mr. PRICE. The point is, those openings can only be accidental. The openings can not occur by promotion, because promotions are not permitted on the statutory roll except by permission of the Committee and when duly provided for by the Committee. For instance, we can promote somebody from \$900 to \$1,000 only when a vacancy occurs in the \$1,000 class. That vacancy could only occur through resignation; death, or dismissal. It could not occur through promotion, because we are barred from promotions unless they are duly provided for by the Committee.

The CHAIRMAN. You are barred from promotion unless there are grades above that are waiting to be filled?

Mr. PINCHOT. Exactly; so that promotion becomes a matter of accident instead of a matter of merit.

The CHAIRMAN. I understand now. Your use of the term promotion conveyed one idea to your mind and perhaps another to mine. We have found that to be true as regards the statutory roll practically everywhere.

Mr. PINCHOT. It is a bad institution.

The CHAIRMAN. Of course the statutory roll simply means that there is a certain number of clerks at certain salary, which number is fixed by the appropriation bill; and you can not increase the number at any certain salary in excess of the appropriation bill?

Mr. PINCHOT. That is it.

The CHAIRMAN. But I do not quite understand why you can not reduce or discharge a clerk if you see fit.

Mr. PRICE. I can give you a specific case that came up of that kind. A clerk had been doing poor work, and should have been reduced from \$1,200 to \$1,000. That reduction was not permitted in view of this arrangement between the Committee on Agriculture and the Secretary of Agriculture. Under that it was impossible for the Secretary to make any change in the statutory roll. To reduce that clerk from \$1,200 to \$1,000 would have been a change in salary of a clerk on the statutory roll.

Mr. PINCHOT. We could have dismissed him.

(Witnesses: Pinchot, Price, Zappone.)

Mr. PRICE. We could have dismissed him; we could not reduce him.

The CHAIRMAN. I would like to know why not. Is there anything in the appropriation bill that undertakes to establish that rule?

Mr. PINCHOT. We can not put a man at \$1,000 unless we have a \$1,000 position.

The CHAIRMAN. No; but if you have a man on the statutory roll at \$1,000, who is capable of filling a \$1,200 place, what is there to prevent you from promoting him and reducing the other man?

Mr. PINCHOT. Simply this arrangement which forbids the transfer of any clerk from the statutory to the miscellaneous roll with a change in salary. If that arrangement had not existed, we could have transferred this man to the lump-sum roll at \$1,000.

The CHAIRMAN. Is that contained in the appropriation bill?

Mr. PINCHOT. No.

The CHAIRMAN. You say that is an arrangement between the Secretary and the Committee on Agriculture?

Mr. PINCHOT. Yes.

The CHAIRMAN. I do not understand why they make that arrangement. Do you know of any law authorizing the exercise of that power on the part of the Committee on Agriculture?

Mr. PINCHOT. I do not know anything about it. I think it is a thoroughly bad arrangement. It was the result of a compromise when the House Committee on Agriculture was proposing to put everybody on the statutory roll.

Mr. PRICE. All technical, as well as all clerical, positions.

Mr. PINCHOT. May I make a statement about statutory rolls in general?

The CHAIRMAN. Yes.

Mr. SAMUEL. Before you do that: Do I understand that a \$1,200 clerk could not be demoted to a \$1,000 position and a \$1,000 clerk promoted to the \$1,200 position, both under the statutory roll?

Mr. PRICE. No; not if both were on the statutory roll. You could not change places between two clerks on the statutory roll.

Mr. ZAPPONE. Mr. Price, I do not like to correct you, but that is not my understanding of the matter. I had a case in point right in my own division, where I reduced a clerk on the statutory roll. The agreement mentioned has reference to the interchange of clerks between the lump-fund roll and the statutory roll; but where both are on the statutory roll they can be advanced or reduced as vacancies occur.

Mr. PRICE. As vacancies occur?

Mr. ZAPPONE. You must have a vacancy to reduce a person; that is the point.

Mr. PRICE. Exactly. But if you have no vacancy, and a reduction is necessary for administrative reasons, you can not make the reduction.

Mr. ZAPPONE. You can exchange the two clerks, virtually making a vacancy in each grade, and put the man demoted in the lower grade and advance that man to the upper grade.

Mr. PRICE. That has never been considered as a solution, so far as I know, in the Forest Service.

(Witnesses: Pinchot, Zappone, Price.)

Mr. ZAPPONE. I think Mr. Samuel is trying to bring that out, and it is entirely possible under the law. But the interchange between the statutory and lump-fund rolls is prohibited, as explained by Mr. Pinchot and Mr. Price.

The CHAIRMAN. I understand, of course, you have to find a person for the \$1,200 position from the \$1,000 grade, to which you are going to add the one and take the other.

Mr. ZAPPONE. Yes, sir; you exchange the clerks.

Mr. PRICE. In this specific case we made formal application for that reduction, and it was refused on that ground. That possible solution was not suggested.

Mr. SAMUEL. I understand, naturally, that if you wish to reduce a person from \$1,200 to \$1,000, and have no vacancy in the \$1,000 class, you have no authority to reduce him.

Mr. PRICE. No.

Mr. SAMUEL. But if at the same time you make a vacancy in the \$1,000 grade by promoting a man from \$1,000 to \$1,200, would it not then be possible?

Mr. PRICE. It would be possible; yes.

The CHAIRMAN. Whether or not, under those circumstances, there is any understanding that would prevent the carrying out of an arrangement of that sort, you would not be able to say?

Mr. PRICE. I simply know that this case came up and was refused on that ground—that such a change could not be made on the statutory roll.

The CHAIRMAN. You proposed to reduce this man one grade on the statutory roll?

Mr. PRICE. To reduce him \$200 in salary as the result of bad work.

Mr. SAMUEL. Was it proposed to continue him in the same kind of work?

Mr. PRICE. No, sir; he was to have different work.

The CHAIRMAN. Did they not take this attitude, as a legal proposition, that it was simply a desire on your part—perfectly proper, no doubt—to reduce the salary or compensation of a clerk in that grade, without reducing him a grade?

Mr. PINCHOT. No; we wanted to reduce him a grade.

The CHAIRMAN. And your effort to reduce him a grade was not approved because of this arrangement, as you understand it?

Mr. PINCHOT. Precisely.

Mr. ZAPPONE. Did you at the same time recommend some one for promotion?

Mr. PRICE. No.

Mr. ZAPPONE. That was the reason why it could not be done. If there had been an exchange of places it would have been possible.

Mr. PINCHOT. The difficulty is this, that anything that makes demotion or promotion depend on anything besides merit is a bad thing, and the statutory roll is simply an obstacle and a hindrance to the executive officer who is trying to get efficient work.

The CHAIRMAN. The other suggestion is, I suppose, that with the lump-fund roll the matter is entirely in the discretion of the head of the Department?

Mr. PINCHOT. Where it ought to be.

The CHAIRMAN. Yes; where it ought to be; but unfortunately, on

(Witnesses: Pinchot, Price.)

account of the weakness of human nature, some men have been put at the heads of bureaus that are not quite as good as other men and have succeeded in pretty vigorously abusing that discretion.

Mr. PINCHOT. That is true. You can not make good administration possible without making bad administration possible at the same time; and the way out, in my view, is to give the man the power he needs to run his business properly and hold him responsible for the use of that power, which the statutory roll does not do. The statutory roll is harmful because it is a determination, by a body of men who can not possibly be in touch with the details of the work as the executive officers are, as to just what we can or can not do in regard to a point that is vital to the conduct of the affairs for which we, and not they, are responsible.

The CHAIRMAN. It eliminates the flexibility that you have in a lump-fund roll?

Mr. PINCHOT. Absolutely.

Mr. PRICE. And increases the expense.

Mr. PINCHOT. And increases the expense very largely.

The CHAIRMAN. It increases expense very largely because, as regards the operation of the statutory roll, you get in after a time, through regular methods of rotation, a lot of men who are drawing salaries that they do not earn, and you can not very well get rid of them?

Mr. PINCHOT. Exactly. You can not correct it.

The CHAIRMAN. Now, is it not possible to have a system of promotion and demotion in connection with the statutory roll depending upon merit which will eliminate some of the evils involved in that proposition?

Mr. PINCHOT. I do not see how, because with a statutory roll you can only promote by getting out somebody higher up. You must either change your statutory roll every year to provide for the promotions which in September you can foresee you may desire to make the succeeding July—and of course that is a very vague and unsatisfactory attempt at a guess—or you must depend upon chance. And the minute your clerks get the impression that promotion depends on good luck instead of on good work you have cut out the most important influence you can use in getting good work out of them.

The CHAIRMAN. Suppose you have a system, applying to your statutory roll, by virtue of which it is distinctly understood by the men that not only their promotion but their continuance in their places depends upon the efficiency record that they make from time to time?

Mr. PINCHOT. How can you have such a system under the statutory roll?

The CHAIRMAN. Let me make this suggestion. In the first place, there is no difficulty in making your promotions on that basis when you have an opportunity. Of course, the opportunity for promotion may be minimized and in a sense almost eliminated; but, so far as the opportunity for promotion exists, there can be no difficulty, as it seems to me, in applying your efficiency plan to your statutory roll.

Mr. PINCHOT. When you get a chance.

The CHAIRMAN. Yes; when you get a chance. Of course that is embarrassed by the fact that your roll is full, and may remain full,

(Witness: Pinchot.)

and therefore you don't get a chance. But suppose at the same time you had an efficiency system by virtue of which, unless the man maintains his record for efficiency, he goes down and some other man goes up. If you have a \$1,200 man whose record discloses that he is not able to do the work that a \$1,200 man is expected to do in order to earn his salary, that puts him in a position where you must reduce him; then if you find you have a man in your \$1,000 grade who can do the work in the \$1,200 grade, and whose efficiency record has disclosed that fact, you can move him up and move the other man down. Why would not that tend to relieve the embarrassment to quite a degree?

Mr. PINCHOT. It would relieve it to a small degree. But it is not the fear of punishment that makes people do the kind of work you desire.

The CHAIRMAN. It is not a question of punishment; simply a question of value received.

Mr. PINCHOT. It is not the fear of being demoted, then, that keeps the clerks doing good work. Demotion must always, under our Government system, be a very small factor. The demotions in the Government service are exceedingly few. I once heard the chief of a great bureau testify that he had been in office seven years, and in that time had never dismissed or demoted a single person.

The CHAIRMAN. I suppose he was satisfied that he had not fully discharged his duty?

Mr. PINCHOT. He went on to say that if he had had the right to choose his own clerks, and handle them in his own way, he could have accomplished better results with half the force.

The CHAIRMAN. On its face that simply disclosed the fact that he had not reduced the men he should have reduced, did it not?

Mr. PINCHOT. It did.

The CHAIRMAN. No matter what he swore to, that of itself would disclose this fact.

Mr. PINCHOT. But the thing that will give you good service in Government bureaus is the chance of promotion, not the fear of demotion.

The CHAIRMAN. Is not one the correlative of the other?

Mr. PINCHOT. The demotion part of it will always play a small part, in my judgment.

The CHAIRMAN. That depends largely upon the stage of the service to which you apply the proposition, does it not?

Mr. PINCHOT. I don't think I understand that question.

The CHAIRMAN. For instance, the life of a clerk. He begins when he is a young man, and as he grows older the time comes when he can not render efficient and valuable service, and can not earn his compensation?

Mr. PINCHOT. Yes.

The CHAIRMAN. And in the end he will die.

Mr. PINCHOT. Yes.

The CHAIRMAN. And some of them, until the year before they die, can do almost as much work as they could when they entered the Department or at any time of their service in the Department, because that is the peculiarity of some men. But, on the other hand, the average man, I suppose, begins to deteriorate in his efficiency several years before he comes to be entirely useless. Now, when you

(Witness: Pinchot.)

reach that period of the clerk's career, certainly demotion must prove a most important and controlling factor, must it not?

Mr. PINCHOT. It would if it had a fair chance to operate, but it will not have a fair chance to operate.

The CHAIRMAN. Assuming, for the purpose of argument, that it has a fair chance to operate; at that stage, at any rate, it becomes an important controlling factor?

Mr. PINCHOT. It then becomes an important factor; yes.

The CHAIRMAN. I suppose it would be true that you could not apply any general rule to men 60, 65, or 70 years of age, that would result in giving the Government the right kind of service, because there is great difference in men?

Mr. PINCHOT. There is an enormous difference in men. The chief clerk of one bureau told me that he had 160 people who were of the class that ought to be demoted, and that substantially all of them were getting their same old salaries. And you gentlemen in Congress are very largely responsible for that. Take the case of a woman who has no other means of support, who has been in the Government service twenty, thirty, or forty years. When she gets to the point where she can no longer earn her salary, and the proposition is made to reduce her, she goes to her Congressman; and it seems an outrage to him—and I do not blame him—that this woman, who has served the Government faithfully so long, should lose her means of livelihood. He goes to the chief of the bureau. The chief of the bureau, to state it plainly, yields to pressure, and in a very large proportion of cases she is not reduced, but goes on receiving pay for service that she is not rendering. That condition will continue just as long as we do not have some form of retirement. I think you have two separate things under consideration. One of them is the question of retirement at the end of long service, which has a very vital relation to getting good work from the clerical force, but is not the main thing. The other is the question of promotion during the period of active, vigorous work. And at the end of the scale demotion cuts a very small figure. It is the chance for advancement which is the spur.

The CHAIRMAN. I understand your position, because I can see where each proposition applies at different periods of time.

Mr. PINCHOT. Precisely.

The CHAIRMAN. In other words, it is a more important factor at some periods of time than at others. But why should they not operate at all periods of time upon the same general principle—on the basis of value received by the Government for the compensation paid?

Mr. PINCHOT. They should.

The CHAIRMAN. That being the case, what is to hinder the operation of that rule under the statutory system of salaries when you come to the question of demotion and elimination from the service? Of course, if there were an absolute retirement from the service that might be a soluble proposition, but if it is simply reduction in salary it would be embarrassed by this fact that you have no places to which to reduce them, I suppose?

Mr. PINCHOT. Yes; that is the story exactly. In order to provide, for example, for a promotion or a demotion—the agricultural bill having just passed, we will say, on the 4th of March—I am compelled

(Witnesses: Pinchot, Zappone.)

to look forward to a year from the following July. I must look forward a year and four months for any change that I want to make. Now, you can not run a business in that way, for the efficiency of the clerk depends upon immediate recognition of good work. He does not want to wait that length of time for a deserved promotion, and I don't want him to do so. If I have been good, I want my doughnut now, and the promise of a possible promotion so far ahead is very little of an incentive. The thing you want is to be able to say to a clerk: "Do good work and I will recognize it promptly. Whenever you have shown that you deserve to move up a peg I will move you up a peg."

The CHAIRMAN. Your judgment, then, is that the question of efficiency of the personnel and proper compensation can not be practically and accurately solved without the lump-fund salary proposition?

Mr. PINCHOT. That is exactly my position.

The CHAIRMAN. To what extent does the statutory salary system apply in the various Departments of the Government, if you know?

Mr. PINCHOT. It applies very widely, and the tendency of Congress is to make it apply still more widely.

The CHAIRMAN. How long has it been in operation?

Mr. PINCHOT. I dare say since the Government began; I do not know.

Mr. ZAPPONE. The law I read to you yesterday establishing grades was passed in 1853, I think.

Mr. PINCHOT. There was a statutory roll, I imagine, before that, was there not?

Mr. ZAPPONE. Possibly; but in that year Congress established certain grades.

The CHAIRMAN. Do the other Departments have as large a proportion of lump-fund salaries as the Agricultural Department?

Mr. PINCHOT. Most of them do.

The CHAIRMAN. Has there been any such experience in the various Departments, so that you are able to predicate results upon the two systems?

Mr. PINCHOT. Yes.

The CHAIRMAN. In what Departments, and what was the result?

Mr. PINCHOT. You may make the general statement that the efficiency of the clerical force of the various bureaus is found in practice to have a direct relation to the presence or absence of a statutory roll. In general, so far as my experience has gone, those bodies of clerks who are on lump funds are more efficient than other bodies of clerks who are on statutory rolls.

The CHAIRMAN. Is that the result simply of your general observation and the opinion you have formed, or can you give us some concrete facts that show that the Government is getting more "value received" from the class of men who are doing work under the lump fund than from the other class?

Mr. PINCHOT. I can.

The CHAIRMAN. Let us have them.

Mr. PINCHOT. Take, for instance, a comparison between the Forest Service and two other organizations of similar size, in the Government service. The clerical force of the Forest Service grew up

(Witness: Pinchot.)

mainly under a lump sum appropriation. We had the benefit of flexibility, because, before this arrangement was made between the Secretary and the Agricultural Committee, we made shifts back and forth on the statutory roll, and were able substantially to make what promotions were required for the good of the service. We obtained, therefore, a very efficient body of clerks at a very low average salary.

The two other organizations to which I refer operate under the other system. Their clerical positions are fixed by statutory rolls almost entirely, and they represent in their clerical force the results of long adherence to the statutory roll. We have compiled figures which showed that we were getting for \$900 substantially the same service that these two organizations, with which comparison was made, were getting for about \$1,400.

The CHAIRMAN. You mean that you were getting the same units of service rendered?

Mr. PINCHOT. Yes.

The CHAIRMAN. What kind of work is that?

Mr. PINCHOT. Clerical work.

The CHAIRMAN. Of the usual character?

Mr. PINCHOT. I mean that the class doing a kind of work costing us \$900 did the same character of work under a statutory roll in these two instances for \$1,400.

The CHAIRMAN. That is, they were doing just as much typewriting?

Mr. PINCHOT. Substantially the same kind of work.

The CHAIRMAN. And getting the same amount done each day?

Mr. PINCHOT. We were getting more done. As there is no cost-keeping system in either of those other bureaus we have not had a chance to find out exactly what it costs them to get a given amount of typewriting done, but, taking the classes of clerks who were doing approximately the same kind of labor, the difference, as I recall it, was the difference between \$900 and \$1,400.

The CHAIRMAN. And that you attribute to the lump-fund method in one instance and the statutory method in the other instance?

Mr. PINCHOT. Yes; that is not the only reason.

The CHAIRMAN. What is the other reason?

Mr. PINCHOT. The other reason is that they were both older bureaus and had a considerable number of either middle-aged or superannuated people who had been there a long time and who had been promoted, not for efficiency of work alone, but also for length of service. That is often a factor to be considered also, but the principal reason, in my judgment, is the difference between the statutory and the lump-fund roll. In the Forest Service we have adopted a plan whereby, whenever we have a vacancy in the statutory roll and we do not think the promotion is deserved, we leave that place open and let the money go back into the Treasury.

Mr. SAMUEL. You would not promote a man who was not doing efficient service?

Mr. PINCHOT. No.

The CHAIRMAN. I wish you would put in your own language and in your own way, as concisely as you can, the distinction between the two methods and the advantages and disadvantages that inhere in each. Of course you have been going over that more or less, but I

would like to have you put in right here, in as concise shape as you can get it, your view of those two methods.

Mr. PINCHOT. There are three things that you must have in order to make the clerical force of the Government efficient. One is appointment under the Civil Service Commission, so as to exclude political appointees—that is, appointment for merit. Second, promotion for merit. And, third, the right of the executive officer to get rid easily and quickly of an inefficient employee, which in some ways is the most important of the three. Under the lump-fund system we have all those three things. We get appointment through merit, promotion strictly for merit, and we can drop a man whenever it becomes necessary. The civil-service rules are such now that we do not have to retain incompetent employees. If we do retain them, it is our own fault. Under the statutory roll you can dismiss a man if he deserves it, but you can not give him, except by chance, either the recognition or the punishment that his work may deserve or demand. In other words, under the statutory roll, promotion becomes a matter of luck instead of a matter of merit. The man no longer does his work with the knowledge that promotion will come as soon as it is deserved; but promotion becomes a matter of chance, which is absolutely fatal to good work on the part of the clerk, or to the proper interest in the clerk's work.

The CHAIRMAN. What do you say about this suggestion that the lump-fund proposition is open to the abuse of the discretion on the part of the responsible officers, and therefore liable to create extravagance and add to the cost of the service?

Mr. PINCHOT. In my judgment the lump-fund proposition is far less apt to create extravagance than the statutory roll, because under the statutory roll, as I have said, the tendency is to pay people more than their services are worth as compared with similar payments on the lump-fund roll. Further, as I have already said, you can not make good administration possible by giving responsibility to an executive officer and holding him to it, without at the same time opening the door to bad administration. The amount of liberty that the executive officer must have in order to give you good results will also permit him, unless he is held responsible, to give you bad results. For example, those bureaus of the Government where the executive officers have had the least freedom, have been most hampered with detailed rules, and have had least responsibility, are the bureaus of the Government where the service has been least efficient; whereas in the bureaus of the Government where a man has been put on his mettle to give good administration, has had the men to do it, and has been held responsible for it, we have had the best results.

Now, you can't put a man in charge of any business and give him a chance to succeed at it unless you give him his head and make him responsible; and there is no reason why the Government business should be run, in that connection, in any other way than any other business. I think the head of a bureau should be held to the most rigid accountability for everything he does. He should get results, and get them economically; and the minute details by which those results are reached are certainly his business more than that of anybody else. You can not hold him responsible for giving you proper

work unless you give him the men to work with and the chance to do his work.

The CHAIRMAN. Is it practicable to have a system by which the concrete results attained are ascertainable?

Mr. PINCHOT. Perfectly.

The CHAIRMAN. There is no such system now, is there?

Mr. PINCHOT. Not in general use; but there is no difficulty about it.

The CHAIRMAN. That is, you could have a system by which you could try up the work of the Department of Agriculture and ascertain whether it was producing units of results that were in accordance with the recognized standard?

Mr. PINCHOT. Yes.

The CHAIRMAN. There is no such system now?

Mr. PINCHOT. There is no adequate Government cost-keeping system in general effect.

The CHAIRMAN. There is no such system that is applied to any other Department of the Government?

Mr. PINCHOT. No; although there are isolated bureaus which have such systems.

The CHAIRMAN. So that, in order to get a unit of result, it may cost the Government one sum here and 100 per cent more elsewhere, or 50 per cent less elsewhere, and nobody knows what the fact is?

Mr. PINCHOT. That is it.

The CHAIRMAN. Would it be a very expensive thing to have a system like that?

Mr. PINCHOT. It would not.

The CHAIRMAN. Is your Commission taking that matter up?

Mr. PINCHOT. We are. We have already made a report on cost-keeping, which has gone to the President.

The CHAIRMAN. Would that require legislation or simply coordination on the part of the heads of Departments?

Mr. PINCHOT. It would require no legislation whatever.

The CHAIRMAN. Is not such a system absolutely necessary in order that the Government should know what it is doing?

Mr. PINCHOT. Certainly it is.

The CHAIRMAN. If you had that system, which simply developed a standard of results, and if a man had charge of a bureau on the lump-fund basis, we could take his list of expenditures and in twenty minutes find out whether he was above or below the proper standard of efficiency?

Mr. PINCHOT. Yes. You can not, of course, compare typesetting with stenography; but there is no reason why such a standard as you suggest could not be established for the work of a bureau; and if a certain bureau is not up to the standard, a comparison with the figures of other bureaus will show it.

The CHAIRMAN. That system would simply furnish a standard by which every man could be tested?

Mr. PINCHOT. Precisely. I see no reason why the Government should not be conducted as any other great business would be. It has been run hitherto without anybody having any knowledge of what was being done, so far as the business end of it has been concerned. We have not known with exactness who was doing good work and who was doing bad work. The idea we have had in this

(Witnesses: Pinchot, Zappone.)

Keep Committee work, and the idea that the President has had, is to put the Government on the same high plane of efficiency that would be occupied by any other great business. We believe most thoroughly that it can be done, and we think we have made some progress toward it. But it is that line that ought to be followed, in my judgment, instead of the attempt to circumscribe and confine the chiefs on the ground that you are afraid they are going to do bad work. The thing for you to do is to insist that they shall do good work; and if they do not, get rid of them.

The CHAIRMAN. Is there any reasonable business compromise between the two systems? That is to say, could you have any general limitations which would furnish bounds beyond which men could not go, but within those bounds give them any other freedom and discretion?

Mr. PINCHOT. That could be done.

The CHAIRMAN. And which would tend to eliminate any danger that might result from the abuse of executive discretion?

Mr. PINCHOT. Yes; that could be done perfectly.

The CHAIRMAN. How could that be done?

Mr. PINCHOT. For example, the establishment of this system of clerical salaries which we have recommended might be taken as a basis. [Handing schedule to the chairman.] If you will read the first page and a half, you will get the idea.

Mr. ZAPPONE. Mr. Chairman, may I make a remark at this point?

The CHAIRMAN. Certainly.

Mr. ZAPPONE. The report of the Keep Committee on cost-keeping, which was submitted by them to the President, has since been transmitted by the President to the Secretary of Agriculture, with instructions to put it into effect, if practicable, in each and every bureau of his Department. Whether or not it has gone to the heads of the other Departments I can not say.

The CHAIRMAN. If you have not stated it, please state what limitations could be placed upon the lump-fund salary method without seriously impairing its flexibility or its efficiency, tending to eliminate the criticism of the abuse of discretion on the part of the heads of bureaus.

Mr. PINCHOT. I would suggest that definite limits be assigned for specific kinds of work, within which salaries may vary, but outside of which they may not go. One of the important things would be to require that a man's salary should change only when the character of his work changes, outside of those limits.

The CHAIRMAN. Your idea is, then, that the law might prescribe the various classes?

Mr. PINCHOT. Yes.

The CHAIRMAN. Without fixing the number of men to be employed in the classes?

Mr. PINCHOT. Yes; but establishing the salaries for those classes.

The CHAIRMAN. And, so far as would be practicable, defining the character of the duties to be performed by those classes?

Mr. PINCHOT. Yes.

The CHAIRMAN. And then leave to the head of the Department the responsibility of saying how many he shall have in the various classes and how long they shall remain therein?

Mr. PINCHOT. Exactly.

(Witness: Pinchot.)

The CHAIRMAN. And it should provide, further, that no other classes should be created except for other kinds of work?

Mr. PINCHOT. That is it.

The CHAIRMAN. And then hold the head of the Department responsible for the number of men he might have in the different grades?

Mr. PINCHOT. Precisely. Then I should personally like to see the committees of Congress investigate the Government work, not merely in their own committee rooms, but where that work is actually going on. I think you would get a great deal better idea of the work if you would make an occasional visit to the various bureaus and see what the work looks like on the spot.

The CHAIRMAN. That is, to see what physical work the employees are actually engaged in, and how they are doing it?

Mr. PINCHOT. Yes; simply go to a man as he sits at his desk, and say: "What are you doing, and how is this related to the general lines of work of this bureau?" Because I find that only a few men in the various committees are actually familiar with what the bureaus over which they preside are doing; and the substitution of supervision over the statutory roll for this live supervision seems to me to be one of the great difficulties. Congress supervises the details of administration in this formal way—for it can only be a formal supervision—instead of going into the various bureaus and getting into actual touch with what is going on.

The CHAIRMAN. That is a distinction between the written or oral examination and the personal inspection?

Mr. PINCHOT. Yes; you can not control the work of a bureau merely by regulating the statutory roll.

The CHAIRMAN. In case of legislation like that which you have suggested, defining practically the duties of the heads of bureaus, but leaving upon them the responsibility of the discharge of those duties, what system of promotion would you employ in relation to the matter of efficiency? On what basis would you make promotions?

Mr. PINCHOT. I would have each chief of bureau, office, or division held rigidly responsible for the system of promotion in his own organization, within the general lines of policy established for the Department. May I read you a statement of the policy of the Forest Service in promotion?

The CHAIRMAN. Yes; we would be glad to have it.

Mr. PINCHOT. It is as follows:

In accordance with the provision of the Service calendar, recommendations for promotions in their offices are made by chiefs to the Forester on June 1. When the recommendations are received they are turned over to the Associate Forester, who with the chief of each office concerned constitutes a committee charged with the further consideration of the recommendations in the light not only of the individual eligibility for promotion of those recommended, but of applying promotions uniformly throughout the Service.

In that way Mr. Price gets a uniform idea, and I, afterwards, of all the promotions recommended in the Service.

This done, the recommended promotions are submitted to the Forester for approval—

(Witness: Pinchot.)

And I do not go over anything more carefully in the course of the year than I do those promotions—

who, before the final action, considers with the chiefs concerned all changes recommended by the Associate Forester with which they do not concur.

We spend weeks over it.

The policy of the Forest Service in its promotions rests upon the following principles:

1. In considering the promotion of any member, the Forest Service takes into account not only efficiency of service, but also the maximum final value of the class of work performed, or the limit which the member may expect to reach. This known, the Forest Service endeavors so to adjust the promotion that the attainment of the maximum salary warranted by the position is reached neither so slowly that injustice is done nor so rapidly that the incentive of possible promotion is soon removed.

That is, we do not jump a man too quickly.

This principle results in promotions seldom exceeding \$100 per year in clerical positions and rarely over \$200 per year in technical grades. The Forest Service's experience has shown that small, frequent promotions are both more wholesome and more conducive to good work than less frequent and larger ones. Thus, except in unusual cases, it is the policy to make small promotions frequently rather than promotions of double or treble the amount at longer intervals.

2. The Forest Service makes no routine promotions.

That we insist on.

Neither long service nor ability to do the work assigned of themselves justify a promotion. Fitness for larger work or for increased responsibility or high and unusual efficiency are alone recognized by increased pay.

Promotion for length of service is not known in the Forest Service.

3. Although it is the active policy of the Forest Service to make salaries uniform for the same class of work throughout its branches, it does not grade them with reference mainly to the salaries paid in other parts of the Department of Agriculture or of other Departments. Salaries in its clerical grades are fixed by the actual value of the services performed, taking into consideration, so far as possible, both the rate of pay which the same work commands in private employ, and the peculiar exigencies and comparatively slighter chance of advancement for those in clerical positions offered by the Government service. The net result is that the Forest Service has a clerical force whose average pay is generally far below that of other branches of the Government service, while its efficiency is believed to be higher.

And I think there is no doubt about that.

4. It is not the policy of the Forest Service to recognize increased responsibility at the outset by increased pay.

This has been slightly modified since this statement was written.

In other words, a new title and larger duties do not necessarily entail a higher salary in the beginning. After a man has justified the confidence shown in him by his promotion in responsibility he is promoted in pay, but usually not before.

5. The Forest Service recognizes, and not infrequently applies, the right to consider a promotion not only in the light of the value of the services performed, but also of its effect upon the man himself. Overconfidence or the danger of advancement too rapid to be wholesome or any one of many other factors may stand in the way of a promotion deserved by actual service, but which nevertheless is for the best interest neither of the man nor of the work in the long run.

(Witness: Pinchot.)

We have found in a few cases that very rapid promotions have ruined good men, and we try to avoid that.

The Forest Service sees in promotions probably its strongest influence for the good of the service. It designates certain limits within which all promotions must fall and certain essential considerations upon which all promotions must be based. It never promotes beyond the limit set for a particular grade of work—

We have those limits written out—

but neither does it give promotion merely because of a change in grade until after that change has been justified by results. It endeavors in each case to pay what the work done is actually worth, but in such a way and by promotions so distributed that the best possible attitude is maintained in each man toward his work.

The application of the policy in promotions adopted by the Forest Service has in the fiscal years 1901 to 1904, inclusive, had results shown in the following table:

This was written a year ago, so I do not think I need to read the table.

So far as the effect of the policy of the service in promotions upon efficiency is concerned, it is believed that the clerical force costs less than any similar force in the Government service, while its efficiency is believed to be higher. It is believed, too, that the high standard, effectiveness, and esprit de corps which are claimed for the technical force are in no small measure the results of the policy of the service in promotions.

This was written a year before we had been able to make the comparison of the ten bureaus that I spoke about a little while ago, which showed that for those ten bureaus the average increase recommended by the Keep Committee would be from 6 to 10 per cent, while the increase for the Forest Service would amount to 30 per cent. In other words, we have proved that when we said we had lower salaries than any other Government organization, we were right.

The CHAIRMAN. That is, a careful examination of the existing conditions demonstrated your conclusion?

Mr. PINCHOT. Exactly.

The CHAIRMAN. On what basis do you determine the efficiency of your employees?

Mr. PINCHOT. We reach it mainly by the report of the man's immediate chief.

The CHAIRMAN. What does he keep?

Mr. PINCHOT. He mainly keeps it in his head. We have tried for the last two years to get an effective system of efficiency records, and so far we have not been able to get anything that was to us entirely satisfactory; and while we have not given up the attempt, and are working toward it constantly, we have not yet succeeded in making an efficiency record that really seemed effective.

The CHAIRMAN. They do have a general efficiency record in your Department, do they not?

Mr. PINCHOT. Yes.

The CHAIRMAN. And do you have those records filled out from time to time?

Mr. PINCHOT. Oh, yes; we keep that.

The CHAIRMAN. That is, the general record of the Department; you keep that?

Mr. PINCHOT. Yes.

The CHAIRMAN. And when you speak of an efficiency record, you have in mind something beyond that, and more in detail?

Mr. PINCHOT. More in detail.

The CHAIRMAN. A record which would disclose more effectively the actual efficiency?

Mr. PINCHOT. Yes. As a matter of fact, I believe that any system of promotions, to be effective, will be based mainly on the knowledge of the immediate chief in matters which it is very difficult to set down on paper.

The CHAIRMAN. That involves the personal equation to a greater extent?

Mr. PINCHOT. You get the personal equation in the other results just the same, because it is the same man who keeps the record.

The CHAIRMAN. Yes; but of course your suggestion emphasizes the personal equation?

Mr. PINCHOT. I think it is probably about an even thing. I have not had much experience with efficiency records. But I know, for instance, that these quarterly returns have, so far as the Forest Service is concerned, substantially no effect on promotions, because we simply put down quarterly or half-yearly the information about these men that we have in our minds already, and it is upon this information rather than upon the written result of it that we act in promotions.

The CHAIRMAN. If they coincide, it is all the same thing?

Mr. PINCHOT. They coincide.

The CHAIRMAN. Is it not an important factor, or at least a factor of value, in connection with the question of the efficiency of the service and the morale of your men, that they have opportunity to know from time to time what their record for efficiency is?

Mr. PINCHOT. We have never found it so. It might be said that we have never had a written efficiency record of that kind.

The CHAIRMAN. You have not sufficient knowledge of that fact, then, to be able to express an opinion as to whether it would be wise or otherwise?

Mr. PINCHOT. I can only say that I have never found the need of it. We have as good a lot of people, I think, as there is in the Government service, and I think they do as much work. In fact, I am very proud of our clerical force as well as of our technical force.

The CHAIRMAN. Then I infer that you have never had any complaints from your personnel on the ground that they have not received all they were entitled to?

Mr. PINCHOT. Yes. They come straight to me or to Mr. Price about it, and we find that personal contact in that way gives us our best results.

The CHAIRMAN. If you get your system of efficiency records, in order that they may produce their maximum of good results, would it not be necessary that the individual affected thereby should either be advised or have an opportunity to see from time to time what his record is?

Mr. PINCHOT. Yes; decidedly.

The CHAIRMAN. So that he may amend or improve?

Mr. PINCHOT. Decidedly.

(Witnesses: Pinchot, Price.)

The CHAIRMAN. And if it was ascertained that the promotions followed from the efficiency record, then a man would feel that he was getting what he had earned?

Mr. PRICE. Could it not be said that we have an efficiency record, not in the form of a record of the achievements of the people themselves as members of the personnel, but rather a record of results in work, which amounts to an efficiency record for the people who did the work? We have a very careful and thorough system for the record of individual pieces of work.

The CHAIRMAN. That is a demonstration of their efficiency?

Mr. PRICE. That is a very excellent demonstration of their efficiency.

Mr. PINCHOT. We think we know, in great detail, exactly what our men are doing.

The CHAIRMAN. Are those records, for instance, open to the men if they make application for that purpose?

Mr. PRICE. They are kept by the chief himself.

Mr. PINCHOT. Certainly.

The CHAIRMAN. That is, if a man came to you and wanted to know how his record for efficiency stood, he could get the information?

Mr. PINCHOT. I would tell him; certainly. He ought to know it. For instance, we take great care that the men in the field, who are reported upon by inspectors, shall get back a statement, either the report itself or a paraphrase of it, which tells exactly what kind of report has gone to headquarters about their work in the field.

The CHAIRMAN. And when you come to promotion, do you base it upon the result of the work they have done?

Mr. PINCHOT. Always.

The CHAIRMAN. And do you have a certain percentage that they have to attain before they get to perfection?

Mr. PINCHOT. No; we have not the mechanical system.

The CHAIRMAN. You simply generalize?

Mr. PINCHOT. We generalize. We consult about all the men who have known this man's work and check it over with them.

The CHAIRMAN. It is not a mathematical proposition?

Mr. PINCHOT. It is not a mathematical proposition.

The CHAIRMAN. But you take all the factors that enter into the equation?

Mr. PINCHOT. Yes. I doubt if a mechanical system can ever be as effective as what you might call a human-interest system—the personal-contact system. Still, it is a good thing to try for, as an aid.

Mr. PRICE. It would be absolutely impossible in technical work. The more mechanical the work the better it could be applied.

Mr. PINCHOT. Yes.

The CHAIRMAN. It could be applied more effectively to what might be called routine work, rather than work that involves initiative and, perhaps, invention—original work?

Mr. PINCHOT. Yes. After all, the success of any organization depends largely on the ability at some point to judge a man's work and his capacities and to select the right man for the right job, which I do not believe any card system will ever accomplish.

The CHAIRMAN. Of course it involves the question of his adaptability for the work?

Mr. PINCHOT. Exactly.

The CHAIRMAN. Of course there are many things that are hard to put down on paper.

Mr. PINCHOT. Almost impossible.

The CHAIRMAN. Have you more or less of a contingent lump fund under your Bureau?

Mr. PINCHOT. Yes.

The CHAIRMAN. Relatively large?

Mr. PINCHOT. Yes.

The CHAIRMAN. How do the salaries you pay under your lump-fund proposition compare with the salaries you pay under your statutory roll?

Mr. PINCHOT. They are mainly for different kinds of work.

The CHAIRMAN. So there is no approximate parallel between the two?

Mr. PINCHOT. No.

The CHAIRMAN. Then there would be no common basis of comparison?

Mr. PINCHOT. None. Clerical people are mainly on the statutory roll, and the technical and field men are on the other roll.

Mr. PRICE. There are no technical people on the statutory roll except yourself?

Mr. PINCHOT. I am the only technical man on the statutory roll.

The CHAIRMAN. What are you on, Mr. Price?

Mr. PRICE. On the miscellaneous roll; the lump-sum roll.

The CHAIRMAN. You use "miscellaneous" and "lump sum" interchangeably?

Mr. PINCHOT. Yes.

The CHAIRMAN. The great bulk of the money expended in your Bureau is on the lump-fund basis?

Mr. PINCHOT. On the lump fund.

The CHAIRMAN. Your total expenditure is \$1,193,150.48. Your statutory roll is only \$81,446.18, while your lump fund is \$790,000 or more. So that the great majority of your expenditures are under the lump fund?

Mr. PINCHOT. Yes.

The CHAIRMAN. And that has been the case all along since your connection with the division and the Bureau?

Mr. PINCHOT. The lump fund has increased right along, compared with the statutory roll.

The CHAIRMAN. And what you have stated with relation to differentiations between the lump fund and the statutory roll is the result of the long experience you have had in connection with these two?

Mr. PINCHOT. It is more than that.

The CHAIRMAN. And your observations and examinations of other Departments?

Mr. PINCHOT. I have been forced, through the work of various commissions upon which the President has put me, to study very carefully other Departments and bureaus as well as my own, and this conclusion comes from a considerable acquaintance with nearly all branches of the Government service.

The CHAIRMAN. In other words, it is not an incidental investiga-

(Witnesses: Pinchot, Zappone.)

tion of this subject, pursued for your own satisfaction and information, but it has been the discharge of positive official duty?

Mr. PINCHOT. Yes. As a member of the committee on the reorganization of Government scientific work, as a member of the Public Lands Commission, and as a member of the Keep Committee I have been obliged to acquaint myself with the methods of operation of nearly all Government bureaus.

The CHAIRMAN. Are the results you gave us in connection with the question of salaries generally and their comparison with those paid in outside employments the unanimous conclusion of the committee that made that investigation?

Mr. PINCHOT. I will not say that they agree in detail with what I have stated. Mr. Zappone can tell you.

Mr. ZAPPONE. I think we might say that it was the unanimous opinion.

Mr. PINCHOT. May I say a word about technical salaries?

The CHAIRMAN. Yes; I would be very glad to have you.

Mr. PINCHOT. I would like to say that the salaries paid for technical work in the Government service are ridiculously small; that they are out of all proportion to the value of the services rendered.

The CHAIRMAN. Is that a statement that applies to the service generally, or to your particular Bureau?

Mr. PINCHOT. That applies to the Government service generally. They are very much lower inside the Government service than they are outside, and that discrepancy increases in proportion as the Government salary is higher.

I can give you some examples to illustrate my point. In the Forest Service, as you know, we have a body of technical men. They come to us at \$1,000 a year, the majority of them, and are promoted as time goes on. I happen to have here a few concrete cases. One of our trained lumbermen has just left us. He was getting \$1,500; he goes to \$2,400.

The CHAIRMAN. Where does he go?

Mr. PINCHOT. To a lumber company. They saw him in our employ. liked him, and gave him a better position, because he is worth more money to them than he was getting in the Government service.

The CHAIRMAN. Was he a professional man?

Mr. PINCHOT. He was a trained lumberman—a technical man. He was one of the best lumbermen we could find. We get them from your State and from other States; wherever we can find them. One of our foresters at \$1,800 has just been offered \$3,600 by a railroad company and refused it. We promoted him, and he is now getting \$2,500; but he refused \$3,600 because of his keen interest in his work. Two others at \$1,200 have just refused offers of \$1,500. Another at \$1,500 has just refused \$3,000 as superintendent of a lumber company. And I can make this list very much larger.

The CHAIRMAN. Those are simply typical?

Mr. PINCHOT. Those are simply typical. Men are constantly leaving the Department of Agriculture at two or three times the salary that they were getting in it; and when you get to the higher positions the discrepancy is much larger. Newell, as Chief of the Reclamation Service, with the expenditure of \$50,000,000 or \$60,000,000

(Witness: Pinchot.)

depending upon his judgment, is getting \$5,000 a year, where he would be getting three or four times that as chief engineer of a company doing that kind of work. Walcott, the Director of the Geological Survey, is getting \$6,000, and to my knowledge has refused \$15,000 from private sources. I could give you other illustrations. Take my own case. I have charge of about a billion and a half dollars' worth of Government property, and I am getting \$3,500 a year.

The CHAIRMAN. Those are forest reserves?

Mr. PINCHOT. Yes; but I am not trying to get my salary raised. The point is that the men who are doing technical work for the Government are being paid salaries that are a half, or a third, or a quarter of what those same men could get on the outside; and the Government service is suffering because a great many men who should be held in it are taken away by the higher salaries of private employment. The Government ought to have the very best men there are. Instead of that, the cream is skimmed off by private companies, private enterprises of one sort and another paying very much higher salaries.

The CHAIRMAN. That also involves, I suppose, the consideration which is obviously present—at least, so it seems to me—that the great mass of these men who thus have the opportunity to leave the Government service are men that have been educated and trained and developed in the Government service.

Mr. PINCHOT. That is right.

The CHAIRMAN. And in a great many of these lines the Government is practically a university for the development of these scientific experts?

Mr. PINCHOT. That is true.

The CHAIRMAN. And there is hardly any competition with the Government in that respect, because there are very few even of the great universities like Harvard and Yale that undertake to furnish courses in their curricula that tend to develop the class of men that are developed by the Government?

Mr. PINCHOT. That is true.

The CHAIRMAN. They have not had a forestry course in Yale, I think, except for the last three or four years. I do not know how that may be, but at any rate it has been only recently established; and the same is true of Harvard. So that, as a matter of fact, the Government has really been educating these men and has developed them on those lines. And I suppose it is also true, is it not, that the very fact that they have been in the Government service and "made good" and had this drill and development is the thing that gives to them their value for outside employment, to a large degree?

Mr. PINCHOT. Largely.

The CHAIRMAN. That is to say, taking two men standing side by side, one coming from the academic institutions and the other from the Government service, with equal mentality and capacity, the Government man, on account of the fact that he has had this drill and has practically that certificate of character behind him, can command a larger salary than the other man?

Mr. PINCHOT. He is worth more. He has had more experience.

The CHAIRMAN. He has more practical knowledge to sell, which

(Witness: Pinchot.)

is of use to these people. And the Government is entitled to some consideration, as to the question of compensation, for the advantages it thus furnishes?

Mr. PINCHOT. There is no doubt of that.

The CHAIRMAN. I do not know whether it could be measured or not; but it is a practical proposition that ought to be considered, ought it not?

Mr. PINCHOT. Undoubtedly it ought. On the other hand, it is a pity that the Government has to lose its best men, as it does, when, if it paid, say, only half or two-thirds of what they could get on the outside it could hold them. Most of the men who are lost in this way are men who would rather work for the Government because of the greater opportunities for research, and because they are handling bigger questions and have more opportunities than they can get elsewhere, if they only had a reasonable excuse for staying. But when a man has a family and is offered double or treble what he gets in the Government service he can not in justice to his family refuse it.

The CHAIRMAN. Of course that is a practical business proposition; but there is another feature involved, and that is that private employment, in a sense, is uncertain. A man has no guaranty that he will remain any great length of time.

Mr. PINCHOT. That is true.

The CHAIRMAN. His large salary might represent employment for a year or two years, while the smaller salary might represent employment for a lifetime.

Mr. PINCHOT. It is just the same as it is with you gentlemen. Everybody who knows anything about it will agree that it is ridiculous to limit your salaries to \$5,000. Whatever you may be willing to vote for, the fact is that your earning power is vastly greater than is represented by that \$5,000.

The CHAIRMAN. Upon what do you predicate that—upon the value of the public service or the capacity to earn in private life?

Mr. PINCHOT. Both.

The CHAIRMAN. You have to differentiate between individuals somewhat, I suppose, on either of those propositions?

Mr. PINCHOT. Yes. For example, Mr. Price is getting \$3,000. He could be earning three or four times that sum if he were in private business for himself; or, if he were on a salary for a great company, he would be earning at least twice as much, and probably three times, with the capacity he has shown here in handling big questions. He stays because he is interested in the Government service, because he likes the work, and because it is not absolutely necessary for him to get every cent he can as salary. But if he were in another line of work, where there was great demand for his services—if the demand were here now, which will be here ten years from now, from private companies, for trained men in forestry—it would be very difficult to keep him, except for his love of the service, because he would be worth so much more on the outside. And it does not seem to me to be fair that the Government should be willing to use a man's affection for his work to hold him on what is often, in effect, half pay or less.

(Witness: Pinchot.)

The CHAIRMAN. The Government ought to be willing to pay for value received?

Mr. PINCHOT. It ought to be willing to pay for value received, and it ought to predicate that pay on the fact that it needs the very best men there are, and not the second-raters.

The CHAIRMAN. The Government ought to have the best service, and ought to be willing to pay a fair compensation for it?

Mr. PINCHOT. Exactly. It does get a very high grade of service in many cases, but not because it pays for it.

The CHAIRMAN. Of course all these other elements necessarily enter into it. I do not suppose it would be practicable for the Government to have a definite term of service that men would engage to render who enter the service of the Government and receive this education and training at its hands?

Mr. PINCHOT. No. As soon as one of them was offered a big place and could not take it, his value would be pretty nearly gone.

The CHAIRMAN. That is, his value to the Government, if it insisted on his remaining in the service?

Mr. PINCHOT. Yes. He would be discontented and unhappy, and do the service more harm than good.

The CHAIRMAN. I would like to make a few more inquiries on the line of surrounding the lump fund salary proposition with conservative provisions intended to eliminate the danger of the abuse of discretion by the heads of bureaus. We have so far called attention to the matter of clerks who could be separated into various grades with their duties defined as indicated. Would it not be practicable to divide the service above the grade of clerks into at least two grades, one involving, for instance, higher executive officers with responsibility and the other applicable to scientific, expert, and professional men—men who become expert in the particular service they render the Government?

Mr. PINCHOT. I think it would be difficult; those two classes run into each other so constantly.

The CHAIRMAN. Well, then, they could all be aggregated in one class?

Mr. PINCHOT. Yes.

The CHAIRMAN. And while it might not be practicable to define with sufficient precision the particular duties to be performed, the salaries fixed for men of that character would be left with the head of the Bureau?

Mr. PINCHOT. Yes; within the general lines of Department policy.

The CHAIRMAN. Now, would it not be practicable, in case of the clerks, to add, as a conservative feature, the limitation of the gross amount to be expended; that is, predicated upon the amount that had been expended, for instance, during the preceding fiscal year?

Mr. PINCHOT. Yes.

The CHAIRMAN. And then fix the limit that the chief of a bureau or department might expend for clerks within the various classes defined?

Mr. PINCHOT. If I understand you, you would say, assuming an appropriation of \$100,000: "You may spend \$50,000 of that for clerks and \$50,000 for technical men and the necessary field expenses."

The CHAIRMAN. Yes.

(Witnesses: Pinchot, Price.)

Mr. PINCHOT. I think that is perfectly practicable and is a sensible thing to do.

The CHAIRMAN. Would not that almost entirely eliminate the danger of the abuse of discretion?

Mr. PINCHOT. It seems so to me. It sounds to me like a very good plan.

The CHAIRMAN. Have you any further statement that you would yourself like to make with reference to the general question of salaries and compensation?

Mr. PINCHOT. I do not think of anything more.

Mr. PRICE. I think you have covered it.

Mr. SAMUEL. The term "promotion" is used in a number of instances simply to indicate an increase in salary, is it not?

Mr. PINCHOT. Yes.

Mr. SAMUEL. In what percentage of cases would you estimate that it means simply an increase in salary?

Mr. PINCHOT. You mean an increase in salary instead of a change of work?

Mr. SAMUEL. Simply an increase in salary; no change in the work.

Mr. PINCHOT. I think it has in the past meant just that in a very large number of cases. Of course there is a sense in which that is very perfectly legitimate. A messenger, for instance, may keep on doing messenger work at two or three different salaries, and his promotion may be perfectly justified, because his efficiency increases while the character of the work has not changed.

Mr. SAMUEL. You use the term "promotion," whether it is an increase of salary or a change of position?

Mr. PINCHOT. Yes.

Mr. SAMUEL. So there is no line of demarcation to indicate when it is simply an increase of salary for efficient service and when it involves a change in the character of the work?

Mr. PINCHOT. No. The Forest Service promotes many times in character of work before it promotes in salary.

The CHAIRMAN. Do you make any promotions in your Service that are not based upon either increased duties or increased efficiency?

Mr. PINCHOT. No; we do not promote for length of service.

Mr. SAMUEL. In salaries?

Mr. PINCHOT. In any way.

The CHAIRMAN. Do you think it is necessary to allow length of service to be an important or a determining factor in the fixing of a man's salary?

Mr. PINCHOT. I think it ought not to be a dominating factor. I think it is probably impossible, human nature being as it is, to keep it out altogether; but the ideal method would be to promote purely for efficiency. Now, length of service in some cases is a very important factor in efficiency—that is, the training which length of service gives, even though a man's duties may not change, may be very valuable purely because of the amount of information about his work or about the past history of his work that he has picked up.

The CHAIRMAN. Strictly speaking, that does not involve the question of the length of service; that simply involves the accumulation of information which he has had opportunity to acquire by reason of his length of service.

Mr. PINCHOT. But for that alone I would never promote him.

The CHAIRMAN. That is, you would not let the fact that a man remained in the service at the end of twenty or thirty years—simply the fact that he had held on—entitle him to go up two or three grades?

Mr. PINCHOT. I would not. If he is not any more useful at the end of that time than he was at the beginning he certainly ought not to be promoted.

The CHAIRMAN. You do not think it is necessary to have that inducement held out in order to have efficient service?

Mr. PINCHOT. I think it would, on the contrary, be a decided detriment to the service.

The CHAIRMAN. You think it would deteriorate it rather than improve it?

Mr. PINCHOT. I think a man, to rise in the service, ought to have to do something besides live. A man ought to have to do something besides that to earn his promotion. The mere ability to escape dismissal is no reason why he should be promoted.

The CHAIRMAN. Your idea is that seniority and routine have no place in an efficient public service?

Mr. PINCHOT. That is it.

Mr. SAMUEL. Have you developed any plan that will prevent political influence in promotions?

Mr. PINCHOT. I do not make such promotions in the Forest Service.

The CHAIRMAN. You mean you do not make them as the result of political influence?

Mr. PINCHOT. No. A Congressman sometimes comes to me and says, "Here is Miss So-and-so, who has been with you a long time, and I would like to have her promoted." I say, "I will look her case up, and if she deserves promotion I will be very glad to recommend it." Then I look up the case and write him the exact facts. I say: "Here are so many clerks who better deserve promotion than this clerk in whom you are interested. It would injure the service to have her promoted over their heads, and therefore I can not do it."

Mr. SAMUEL. That does not obtain in all the Departments?

Mr. PINCHOT. I do not know about the others, but that is what I do; and I have found that such a statement of the facts invariably settles the question. Nobody comes back. They say it is all right; that they do not want to interfere with my system.

The CHAIRMAN. I suppose, in the case of two persons who are understood to be in line for promotion to a higher grade, everything else being equal, you might then give the preference to the man who had been longer in the service?

Mr. PINCHOT. Yes, sir; I think I would.

The CHAIRMAN. But further than that you would not go?

Mr. PINCHOT. No. I have constantly jumped men over others who have been longer in the service.

The CHAIRMAN. Why should there not be a uniform system of efficiency records prevailing in all the Departments of the Government, so that when a clerk is transferred from one Department to another he would land in the same degree of clerkship, unless his record showed that he was entitled to promotion to the next higher grade?

(Witness: Pinchot.)

Mr. PINCHOT. It is a good idea.

The CHAIRMAN. And, in case of jumping up three or four grades, why should not the clerk, under those circumstances, take an examination which would be open to all desiring to enter that grade, and either get the promotion or lose it on the basis of the results of that examination?

Mr. PINCHOT. Because, as a rule, you can not ascertain fitness for an advance in work by examination. It is right to let people into the service on examination, but after that the personal equation is so important that it seems to me promotion by examination would not work out well. I have never tried it; but that is my opinion.

The CHAIRMAN. Your idea is, however, that the general rule applying to all the Departments would be a wise one?

Mr. PINCHOT. Yes.

The CHAIRMAN. And would not that tend to allay a great deal of the unrest and dissatisfaction that now exists in the various Departments, which cause these applications for change from time to time; that is, if they knew that when they reached the other Department they would land there on exactly the same level?

Mr. PINCHOT. It would. It would be a very useful thing. Of course there is another reason for this unrest, and that is that the scale of salaries paid for similar work varies greatly from one Department to another at present.

The CHAIRMAN. That, of course, ought to be unified.

Mr. PINCHOT. That ought to be unified.

The CHAIRMAN. If the matter was on the lump-fund basis there is no reason why coordination on the part of the heads of these Departments should not absolutely unify that proposition.

Mr. PINCHOT. Absolutely none.

The CHAIRMAN. And if it is a question of statutory provision, there is no reason why Congress could not unify it?

Mr. PINCHOT. It would be hard to get at.

The CHAIRMAN. It would be hard to get at; but with the lump-fund proposition there is no reason why that should not be done.

Mr. PINCHOT. None whatever.

The CHAIRMAN. It is within the power of the Civil Service Commission to-day to make general rules in relation to efficiency, so far as that idea is predicable upon the question of promotion, and to make them applicable to all Departments?

Mr. PINCHOT. Yes.

The CHAIRMAN. Now, why should that not be done?

Mr. PINCHOT. It should be done.

The CHAIRMAN. Your judgment is that that would promote the efficiency of the service to a marked degree?

Mr. PINCHOT. Decidedly.

Mr. SAMUEL. Have you been embarrassed in your Department by other Departments taking good men from you at better salaries?

Mr. PINCHOT. Yes; to some extent; but we have lost very much fewer people than we would if we had not made a very definite effort to make the surroundings of the clerks in the Forest Service agreeable. We have tried to keep only a high grade of people, to have everything clean and neat and decent, and to treat our clerks

(Witnesses: Pinchot, Price.)

like ladies and gentlemen, and we find that people like to stay, as a rule.

The CHAIRMAN. As to the statutory salaries relating to clerks, is there much differentiation between your Bureau and others?

Mr. PINCHOT. I think we pay a lower rate of salary for the same service than do any of the others.

Mr. PRICE. That was ascertained by actual comparison of the various bureaus in the Agricultural Department and also of other Departments in the preparation of material for the Keep Committee.

The CHAIRMAN. That was about 30 per cent below, I believe.

Mr. PRICE. I mean, in addition to that, an average clerical salary was taken for practically all bureaus in the Government service, and the Forest Service was found to be very close to the minimum.

Mr. SAMUEL. That would not indicate that you had a class of men that possessed less ability, would it?

Mr. PINCHOT. I certainly do not think it does.

The CHAIRMAN. What is the character of the work that you do with your Bureau here in Washington?

Mr. PINCHOT. We have here the clerical work to support the field work, a certain proportion of the executive officers necessary for the same purpose, and the administrative officers of the Forest Service.

The CHAIRMAN. That covers the ground pretty well?

Mr. PINCHOT. That is mainly the work we have here.

The CHAIRMAN. The work of your Bureau is of such a character that you have no experimentation?

Mr. PINCHOT. Oh, yes.

The CHAIRMAN. That expert work can be localized here?

Mr. PINCHOT. Yes. If you would like to have a description of that, that is a totally different matter.

The CHAIRMAN. What I wanted to get at was the scope of your Bureau's operations in Washington. Then we will go into the matter of the outside service.

Mr. PINCHOT. The experimental work in Washington is limited at present mainly to work on the Arlington Experimental Farm, where we are doing certain things with willows, and a few other small pieces of work. Then the men in the field, who have been conducting field examinations, come in here to prepare their reports. They find it necessary to consult the library, or talk with other men, in order to summarize and put down the results of their field work. The actual experimental work is very largely, of course, in our Service, in the field outside of Washington. I am trying to reduce the Forest Service in Washington to three things: Record, which means principally accounts and correspondence; inspection, which is keeping in touch with the field work from the head office; and administration. All the rest of the work I should like to have done away from Washington, on the ground.

The CHAIRMAN. Is it not practically essential to have it done that way, in order to have it done effectively and usefully?

Mr. PINCHOT. The only reason why so much of it remains here is that when the transfer of the forest reserves to the Department of Agriculture was made we took over a large number of men who were untrained in forestry. The policy which should guard and

(Witness: Pinchot.)

control the whole of such a service had not been developed in the Interior Department, and it was necessary, at first, to keep more men in Washington, during the period of training and the constructive work, than will be necessary later.

The CHAIRMAN. That is, in order to develop the personnel?

Mr. PINCHOT. In order to develop the personnel and to develop the policy.

The CHAIRMAN. Have you any experimental work except this at Arlington?

Mr. PINCHOT. Not at Washington.

The CHAIRMAN. What is the character of that?

Mr. PINCHOT. It is a small piece of work on willows mainly; developing American species of willows to help the basket industry. It is a small affair.

The CHAIRMAN. It is rather incidental?

Mr. PINCHOT. Incidental, yes. The most of our work is away in the woods, where it ought to be.

The CHAIRMAN. With reference to your work right here, you have an editorial branch, in the publication of results, which requires something like \$9,000. What is the nature of this editorial work?

Mr. PINCHOT. The knowledge which we get from our field work is valueless, of course, unless it is made known. Most of the investigators are not capable of stating their results in as readable and exact a form as is necessary if they are to be widely read. Consequently we have a few men whose duty it is to assist the field men in the preparation of their material and to get it out in the best shape. That is substantially what this editorial work is for. It is not nearly as large a part of our work as it ought to be.

The CHAIRMAN. They are the men who put into final literary shape the results of the investigations of the men who have personal contact with the experiments?

Mr. PINCHOT. Shall I give you an individual case?

The CHAIRMAN. If you please.

Mr. PINCHOT. A man comes in here from studying a forest, we will say, in Arkansas. He has been anxious to find out certain things about the growth of that forest and the way it should be handled. He has been away, say, six months. He comes back to the office ready to prepare his report, which is to be published. The first thing he does is to make a table of contents, showing exactly what he wants to cover. He takes that up with his chief, who is directing the investigation, and with the editor. They go over that table of contents and agree upon any necessary changes. Then the investigator writes his report, with constant reference to the editor. When that is done the editor, the writer of the report, and the chief who is directing the investigation form a committee and together go over the report and lick it into shape. When they have finally gotten it into proper condition, it is turned over to the editor, who sees it through the press, attends to the proof reading and all the rest of the routine, and has charge, finally, of the distribution of it through our mailing lists.

The CHAIRMAN. In the Division of Publications we discovered that there was an editorial corps there of six or eight people.

Mr. PINCHOT. Yes.

The CHAIRMAN. And that this work is done, for instance, by your Bureau and then submitted to one of their editors, who goes over it again.

Mr. PINCHOT. The reading by their editor, so far as I understand it, is for two things. One of them, of which there is very little now, is to see that the form, the type directed to be used, and all that, conform to the custom of the Government Printing Office.

The CHAIRMAN. That is purely mechanical?

Mr. PINCHOT. That is purely mechanical. The other is that the Secretary must have some one who reads this material, in order to protect him against mistakes in policy.

The CHAIRMAN. Is it not feasible to have a man of sufficient breadth of intelligence so that one editor can discharge all those duties and eliminate this duplication of work?

Mr. PINCHOT. I do not think there is much duplication, although it sounds as if there were.

The CHAIRMAN. We found, in the first place, that the scientist wrote the article. The editor in that department went over it and licked it into literary shape. That was twice. Then it came up to his division and his editor. He went over it again. Now, there were three men reading this material from end to end. Of course it may not be feasible to have a man of sufficient intelligence and capacity to do all this work, but why is it not?

Mr. PINCHOT. In the Bureau?

The CHAIRMAN. Either in the Bureau or in the Division of Publications, so as to eliminate at least one of these readings.

Mr. PINCHOT. The Bureau of Publications is not equipped with men who could handle the publications of the Forest Service, because they do not know anything about forestry. We must have men who are experts in form and style and know something of forestry at the same time. I do not know of any reason why the Bureau should not turn out fairly complete material, so that the editorial work under Mr. Hill need not be very large. My impression is that when our material goes to them it is in such shape that comparatively little else has to be done to it.

There is one reason why an editorial body of some kind is absolutely needed in the Department as well as in the Bureau, and that is that it happens not infrequently that two bureaus get the wires crossed. For instance, somebody in the Forest Service prepares a bulletin about the white oak, we will say, and he finds that to treat his subject he has got to refer to insects that prey on that tree and make the timber unsound. He writes what he thinks is true about it, but he is not an expert on insects, and before the bulletin is published it ought to go to the Bureau of Entomology to be checked up.

The CHAIRMAN. Is not that a matter that ought to be attended to by your Bureau?

Mr. PINCHOT. No; there ought to be somebody to enforce that cooperation. If two bureaus were left to settle that themselves, there would many times be trouble.

The CHAIRMAN. Your idea is that it is not practicable to have that determined by the bureaus themselves; that there ought to be an intermediary?

Mr. PINCHOT. Yes; somebody who represents the Secretary.

The CHAIRMAN. Then your idea is that it is not practicable to avoid what is an apparent duplication of work?

Mr. PINCHOT. But what is not really a duplication.

The CHAIRMAN. Yes.

Mr. PINCHOT. No; I do not think it is practicable. Each bureau must maintain for its own efficiency its own editorial corps.

The CHAIRMAN. Do you have much material sent back to your Bureau by the editor in chief?

Mr. PINCHOT. Very little.

The CHAIRMAN. Do you have a library?

Mr. PINCHOT. We have a substation of the Department library. We keep the books on forestry for the use of our men, but ours is not a separate library.

The CHAIRMAN. You have a librarian?

Mr. PINCHOT. We have a librarian to take care of those books. But you see it would not be practicable—that is, the loss would be very much greater than the gain—if we kept those books a mile away, and every time a man wanted to get a book he had to go over and get it.

The CHAIRMAN. You have here Lumber Trade Statistics, which cost your Department something like \$15,000. Is there any other Department of the Government, or any other bureau of the Government, that is collecting substantially that same material?

Mr. PINCHOT. No; we are doing this in cooperation with the Census.

The CHAIRMAN. Does not Austin, with his Bureau of Statistics, come into that field?

Mr. PINCHOT. No.

The CHAIRMAN. Just explain in what way you cooperate with the Census Bureau.

Mr. PINCHOT. We are cooperating with the Census and with the lumber associations. There never had been a proper statement of the lumber cut and used until we took it up. The Census people, who have the machinery, send out the schedules which we have prepared beforehand in cooperation with their men and with the lumber-trade people. For instance, the secretary of the National Lumber Manufacturers' Association is a member of the Forest Service, at a salary of \$25 a month, in order to help us prepare this material and get it out and to give the lumbermen the assurance that their organizations are as much interested as we are. The Census sends out the schedule that we have prepared in cooperation. We decide what we want to have calculated out of the returns, and we print it jointly.

The CHAIRMAN. Who comes into direct contact with the industry, the Census or you?

Mr. PINCHOT. We come into direct contact with the industry, and the Census Bureau does the clerical end of it.

The CHAIRMAN. You send out the men?

Mr. PINCHOT. This is not a case of sending out men; it is a case of sending out circulars.

The CHAIRMAN. These salaries, then, are paid to people in Washington?

Mr. PINCHOT. Yes; in part.

The CHAIRMAN. That is, when you segregate this here, it is simply an estimate of the amount of expenditure upon that particular branch?

Mr. PINCHOT. Yes. I do not say those men merely stay in Washington, but that the collection of these statistics is done by the Census through correspondence. Our men are in constant touch with the various lumber trade associations, going before them constantly, discussing these questions, and taking up with them economies in the uses of wood. So that our boys are traveling over the country constantly.

The CHAIRMAN. That is where you get such large traveling and station expenses?

Mr. PINCHOT. Yes.

The CHAIRMAN. The actual collection of the statistics is done by these circulars sent out by the Census Bureau?

Mr. PINCHOT. Yes; that is done by the Census.

The CHAIRMAN. You avail yourselves of their machinery?

Mr. PINCHOT. Precisely. It would be a loss to double that machinery.

The CHAIRMAN. Part of this sum expended for salaries under this head covers the time and expenses of the men who travel about in the way you have described?

Mr. PINCHOT. Yes.

The CHAIRMAN. They are not literally collecting statistics, but they are simply rubbing up against that particular business?

Mr. PINCHOT. They are laying the foundations which make the collection of good statistics possible.

The CHAIRMAN. They are awakening an interest on the part of these people?

Mr. PINCHOT. Exactly.

The CHAIRMAN. It leads them to furnish voluntarily to the Census Bureau the information you need?

Mr. PINCHOT. Of course it is of the greatest possible interest to us to know what the cut of lumber is in the United States every year.

The CHAIRMAN. That bears upon the question of the depletion of the forests?

Mr. PINCHOT. Precisely; and as it was not being ascertained we had to take it up, and that is the way we handle it.

The CHAIRMAN. Do you collect any other statistics in the work of your bureau than these?

Mr. PINCHOT. No; just the lumber trade statistics. We are making what might be called statistics on a very large scale; that is, we are collecting the results of our measurement of forests, the production of timber per acre, etc. But these we get by original measurements in the woods.

The committee thereupon (at 1 o'clock p. m.) took a recess until 2 o'clock p. m.

(Witness: Pinchot.)

FEBRUARY 2, 1907.

(Part of testimony, given on above date, before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF GIFFORD PINCHOT, ESQ.—Continued.

The CHAIRMAN. Mr. Pinchot, you have been pretty thoroughly over what might be termed, perhaps, the business and executive features of your Bureau, as distinguished from its general operations and the results that it accomplishes?

Mr. PINCHOT. Yes.

The CHAIRMAN. What we would like to have you do now is to make as full a statement as you are prepared to make, showing to us the concrete utility of the Bureau of which you are the head—what it proposes to do, what it is doing, the practical methods it is using for the purpose of doing it, and what the effect of those results is going to be to the people of this country from the material point of view. Do I make that clear?

Mr. PINCHOT. Perfectly.

The forests of the United States cover about one-third of the area of the country. The people of the United States use more wood per capita than any other nation on earth. Wood enters more vitally into our civilization than into any other civilization. For instance, the proportion of wooden houses is larger here; the use of wood in all directions is much larger in the United States than anywhere else.

Furthermore, the forests, aside from merely furnishing wood, maintain and control the water supply, and therefore form a foundation, not merely for protection from flood, but for the maintenance of the water supply for power, for the use of cities, and especially for irrigation in the West.

The CHAIRMAN. To what do you attribute that larger use of wood in these various avenues by the people of this country? Is it due to the cheapness of the material and the convenience of its use?

Mr. PINCHOT. In the first place, to the larger supply and the greater convenience of use. In the second place, to the fact that our people are not in the habit of building for the future as much as other people are. We put up a wooden house that will last a little while, where very many other nations would put up a stone house that would last nearly forever.

The CHAIRMAN. That is to say, our structures are temporary rather than permanent?

Mr. PINCHOT. Our structures are temporary rather than permanent, taking the nation as a whole. And then it is because, in the eastern United States, when the settlers first came here, we had an enormous supply of timber, and the forest was rather an enemy than otherwise. Everybody had all the wood they wanted to use. As our people have moved West, into the region where wood has been less plentiful, they have carried with them their wasteful habits of use.

Another reason is the enormous extension of our railroads, which require about 100,000,000 ties a year merely for maintenance, and to keep one tie on the track you must keep two trees growing in the forest, if I make that plain.

The CHAIRMAN. Yes.

Mr. PINCHOT. Furthermore (and then to return), in addition to the enormous value of the forests in the West for irrigation and power, the forests of the United States control the grazing industry on the public lands, because the forest reserves contain nearly all of the summer range. Of course if you can not keep the cattle through the summer on the summer range, you can not use the winter range and the spring and fall range. So that in the western part of the country the preservation of the forest means the preservation of wood, water, and grass. In the eastern part of the country it means the preservation of wood and water. There is no other nation on earth whose dependence on the forest is as striking and as vital as ours, because of the configuration of our country and the manner in which its problems arise.

The CHAIRMAN. The extent of its area, also, I suppose?

Mr. PINCHOT. The extent of its area and the whole physical condition makes the forest more important to the United States than to any other part of the world of equal area.

By far the larger part of the forests of the United States is and will remain in private hands. While in the national forest reserves there are something over 120,000,000 acres, there is in wood lots alone a much larger area than that; and in addition there are the enormous areas of forest controlled by lumber companies, by a few of the States, and by large owners generally.

We are trying to do, in the Forest Service, two things—

The CHAIRMAN. Can you give, right there, any approximation of the percentage of the one-third of the area that is devoted to forests that the Government now holds?

Mr. PINCHOT. Yes; the Government now holds, say, 150,000,000 acres. It holds about a fifth of the forest area of the country, roughly—between a fifth and a sixth.

What we are trying to do in the Forest Service is mainly along two lines: We are trying to educate the private owner to the fact that it will pay him to take care of his forest, and thus get the four-fifths of the forests of the United States preserved by the good-will and the intelligent understanding of the men who own them.

The CHAIRMAN. And the self-interest?

Mr. PINCHOT. And the self-interest—we base that on self-interest absolutely. We appeal to them purely on the ground that it is the best business policy for them to save their forests; and a large part of the work of the Forest Service hitherto has consisted in gathering statistics, by measurements in the forest, to show that forests grow fast enough to make it pay to treat them decently. We have been able to show to business men what their lands will produce after a certain time if they are handled in certain ways; and it has been an easy matter to balance that product, using present lumber prices, against taxes and expense of maintenance and interest, and so on, so as to show definitely that it was a paying proposition to take care of their woods.

On that side, then, we are charged with the general progress of forestry.

The CHAIRMAN. Right there, is there much of what you would call

(Witness: Pinchot.)

current expense involved in the application of proper forestry methods?

Mr. PINCHOT. No; there is very little.

The CHAIRMAN. Perhaps it would be well to explain, right here, why and how that is.

Mr. PINCHOT. There is very little current expense, because all you have to do is to let the trees alone and allow them to grow. There is a certain amount of taxes, a certain amount of protection against fire, in some cases an expense for fencing, and there is the capital, the interest account running against the capital value. But the expense of maintenance is small. There is nothing more involved than simply letting the forest grow.

The CHAIRMAN. Is it not a question of cutting out from time to time by proper and intelligent methods?

Mr. PINCHOT. We recommend no cutting out that does not pay for itself. That is all profitable in addition.

The CHAIRMAN. What method do they use in cutting if they are preserving the land? That is to say, in what way do they cut?

Mr. PINCHOT. That depends entirely on the condition of the forest. There are as many different treatments for forests as there are different treatments for a man who is sick, depending on the nature of his disease.

The CHAIRMAN. Oh, yes.

Mr. PINCHOT. We simply examine the forest land, find out what its condition is, what it needs, how it can best produce what the owner wants from it, and then make recommendations as to the best method to get that.

The CHAIRMAN. To get that particular—

Mr. PINCHOT. That particular service, and at the same time preserve the forest and insure its continuance.

The CHAIRMAN. Those investigations are conducted without expense to the property owner?

Mr. PINCHOT. No.

The CHAIRMAN. They are not?

Mr. PINCHOT. We make the property owner pay the expense of those investigations.

The CHAIRMAN. How expensive are they?

Mr. PINCHOT. At first the property owner paid us but a very small proportion of the expense. Gradually we have increased the proportion we have required from the property owner, as the value of the work that we were doing became recognized, until much of the work that we now do for forest owners pays all the expense involved. And we have almost reached that point where we shall be able to charge the cost, plus 10 per cent, for every piece of work we do for a private owner.

The CHAIRMAN. The cost involves mainly the salaries and expenses of the men engaged in examining the forest?

Mr. PINCHOT. Precisely; and often the elaboration of the measurements which they have taken.

The CHAIRMAN. Yes. Have you reached such a system in connection with that that you have a unit of cost? For instance, what does it cost to examine and prepare the data for a forest of 100 acres or 500 acres, as the case may be?

(Witness: Pinchot.)

Mr. PINCHOT. We have units of cost, which vary in different parts of the country. They also vary very greatly with the amount of information we have already succeeded in collecting about a particular kind of forest. We may be able to tell a man, and we can now for many kinds of forests tell a man right off, what he should do without more than a cursory examination on the ground. In other cases it may take us months of patient measurement to find out exactly what that particular kind of forest will do.

The CHAIRMAN. Yes. In other words, some of your examinations have to be specific?

Mr. PINCHOT. Yes.

The CHAIRMAN. Unless the forest inquired about comes within some generalization which you have already gotten the information in relation to?

Mr. PINCHOT. Yes.

The CHAIRMAN. Is the knowledge that you have acquired of such a character that you can approximate the cost?

Mr. PINCHOT. Yes.

The CHAIRMAN. What I want to get at is what, as a rule, it would cost a man to get the benefit of the knowledge of the Department.

Mr. PINCHOT. It may cost all the way from half a cent to 10 cents an acre. Suppose I put in some specific cases.

The CHAIRMAN. Yes; I wish you would.

Cost of working plans, per acre.

State.	Tract.	Area (acres)	Cost.	Per acre.
Maine	Great Northern Paper Co. (spruce)	350,000	\$5,000	\$0.0141
Michigan	Cleveland Cliffs Iron Co. (white, red, and jack pine)	10,000	275	.0275
North Carolina	Linville Improvement Co. (hardwood and hemlock)	16,000	395	.025
New York	Moose River Lumber Co. (spruce and some hardwood)	15,000	200	.0133
Pennsylvania	R. C. Neal	2,300	146	.0635
Tennessee	New River tract (hardwood)	60,000	1,167	.0194
South Carolina	Burton Lumber Co. (loblolly pine)	77,000	800	.0104
Arkansas	Sawyer & Austin Lumber Co. (shortleaf pine)	80,000	1,200	.015
West Virginia	United States Coal and Oil Co. (spruce, hemlock and hardwood)	30,000	1,000	.04
Kentucky	Hillman Land and Iron Co. (hardwood)	50,000	1,500	.03
Texas	New York and Texas Land Co. (red cedar)	20,000	1,300	.065
Kentucky	Interstate Investment Co. (hardwood)	7,000	700	.10
Arkansas	Stout-Greer Lumber Co. (shortleaf and loblolly)	65,000	1,800	.027

The CHAIRMAN. It is quite possible, I judge from your statement, that if you were applied to by a man in a certain locality for information as to how he could properly operate his forest under the most improved scientific forestry methods you might possibly be able to give information with comparatively no expense, if it happened to be a locality that you had already covered?

Mr. PINCHOT. That is happening all the time.

The CHAIRMAN. On the other hand, your knowledge of the location is such and your information as to various sections of the country is such that if it was not covered within any generalizations you had already made, you would be able to give him an approximate estimate of what it would cost him to avail himself of this information?

(Witness: Pinchot.)

Mr. PINCHOT. We do that regularly, saying that it will cost him not to exceed so much.

The CHAIRMAN. So that it is a practical business proposition?

Mr. PINCHOT. It is a practical business proposition.

The CHAIRMAN. Ascertainable before the man embarks on the enterprise?

Mr. PINCHOT. Perfectly; and he signs an agreement to that effect.

The CHAIRMAN. To produce the results?

Mr. PINCHOT. To produce the results. We make without charge, a preliminary examination to determine whether it is a good scheme to take up, because we only take up the ones that are going to be most useful as object lessons.

The CHAIRMAN. Yes.

Mr. PINCHOT. So that we are gradually creating effective public sentiment, especially among the lumbermen, that it is worth while to look after the forests as a business proposition. We are also helping men to replant large and small tracts. Where it is a little bit of replanting for a farmer's wood lot we do the work without expense. Where it is a larger tract, as for a railroad company or a big owner, we make them pay for it. The idea is to give the small man who can not pay as inexpensive help as possible, and where it is a larger job to get the cost of it from the large owner, for whose profit the work is done. Improved methods in forest management by States and private owners, in cooperation with the Forest Service, result in an annual saving of at least 3 per cent of the yearly cut of one hundred billion feet, which at \$3 per thousand is \$9,000,000.

The CHAIRMAN. Right at that point, explain how you do replant and what features are involved in replanting, and in connection with that how it happens, if it is a fact, that a soft-wood growth is quite frequently followed by a hard-wood growth?

Mr. PINCHOT. I will explain all that with much pleasure, if you wish to have me.

The way we do the replanting work is to send a man on the ground, as we do with the other case where we have not the information already. Where we have it, we simply send out leaflets and general directions to make an examination, where necessary, of the ground itself, study the kind of tree growth that is there already, and apply to that tract the information which we have already gathered of the kinds of trees best suited to kinds of soils in different localities, all of which is summed up in what we call a tree-planting plan, which is finally, with a little map, sent to the owner. The owner is required to supply his own trees and do his own work.

The CHAIRMAN. You say he is required to supply his own trees. What is that for—slipping or planting?

Mr. PINCHOT. He has to furnish whatever he wants to plant. We supply no trees and no seed, nor do we do any planting.

The CHAIRMAN. Is it a question mainly of seeds or of plants?

Mr. PINCHOT. Generally of plants. If it is to be a large plantation, a man makes his own nursery and continues planting through a number of years. If it is a small one, as for a farmer in Iowa, he would buy his trees from some nurseryman and set out his wind-breaks

himself. We tell him how to plant and where to plant and what species to plant; we give him a specific plan.

The CHAIRMAN. Do they plant these small trees in forest tracts to any commercial or practical extent?

Mr. PINCHOT. Yes. Many of the large railroads are taking up actively the replanting of the denuded lands which they own, for the sake of producing their own ties.

The CHAIRMAN. And in that case you give instructions as to the kinds of trees to be planted?

Mr. PINCHOT. Yes.

The CHAIRMAN. How near together and under what circumstances they should be planted?

Mr. PINCHOT. Yes.

The CHAIRMAN. Do they need any treatment or care after the first planting?

Mr. PINCHOT. Very little. They need a little thinning out, perhaps, afterwards; but the main point is to get them well started. A railroad company, for instance, will come to us, or a coal company, or any large enterprise, and say: "Our annual consumption of timber is so much. We are beginning to see difficulty ahead in getting that supply. Will you advise us how we may protect our own interests by getting ready to produce that timber ourselves?" And we say to them, as the case may be: "It is wiser for you to buy timber land already started," or, "It is wiser for you to plant such-and-such trees on such-and-such tracts," and of all this work they pay the expenses.

The CHAIRMAN. Do they seed to any great extent?

Mr. PINCHOT. Not so much as they plant.

The CHAIRMAN. Can they seed? That is, is it practicable to seed for some kinds of trees that they do plant?

Mr. PINCHOT. Perfectly.

The CHAIRMAN. Or are there trees that have to be produced from seed, and can not well be produced by plants? What is the fact in that respect?

Mr. PINCHOT. That is an idiosyncrasy of the individual species. The seed of some kinds of trees you can sow broadcast with great success. Others you can not hope to get satisfactory results from in that way. You must grow the seedlings in the nursery and plant them out afterwards. In the case of some kinds you can plant the seed itself, with the corn planter, for instance.

The CHAIRMAN. What are the principal varieties—that is, the main varieties—that you can plant by seed?

Mr. PINCHOT. In the East we are recommending very largely chestnuts for the railroad companies that want to grow ties, and for the telephone people. In the West the catalpa is one of the important trees, and mulberry, ash, and various pines. We find as a rule that the evergreens do better in the arid regions than the broad-leaf trees.

The CHAIRMAN. Do all of those trees come from seed?

Mr. PINCHOT. Every tree comes from seed at some time.

The CHAIRMAN. But I mean in connection with your forestry proposition. Is it a feasible proposition to produce those from seed, or is it more feasible to produce them from slips?

(Witness: Pinchot.)

Mr. PINCHOT. Generally from seed. It costs much less to produce trees from seed than from slips. You can sow the seed in nursery rows and drills at very slight expense. We have produced young trees and set them in the ground in considerable quantities for less than \$3 a thousand, so that we have produced them as cheaply as anybody ever has in this country.

You asked me a moment ago why oak is sometimes followed by pine.

The CHAIRMAN. Yes; or pine by oak?

Mr. PINCHOT. Or pine by oak. In the eastern pine forests there is almost always an undergrowth of small, scrubby oaks, just vegetating near the ground and unnoticed as you go through the forest—as high as this table or lower. When the pines are taken away these oaks that are already on the ground spring up and immediately, with the new light, begin to come rapidly ahead; and the change from pine to oak is made by the oaks that were already on the ground before the pines were removed, in very many cases. In other cases where oak is removed and pine comes in, the pine seed being a very light, winged seed, is blown from a distance and takes possession of ground that might have been occupied by the oak seed if there had happened to be plenty of acorns at the proper time. In other cases the character of the seed bed is more suitable for one kind of tree than for another, and that makes a difference.

The CHAIRMAN. Then there is no natural law that would indicate a change from one to the other, or a rotation—that is, there is no natural rotation of the two kinds of trees?

Mr. PINCHOT. There is an indication that there may be such a law, but we really know practically nothing about it. Personally, I think it is safer to explain it by the definite facts that we do know than by any such general law, which may or may not have effect.

The CHAIRMAN. So far as that general law is concerned, up to date it is largely a matter of theory, then?

Mr. PINCHOT. I think it is.

The CHAIRMAN. And there are no investigations that you have been able to carry on in your Bureau that have been able to demonstrate the existence of any such law?

Mr. PINCHOT. We have not tried, because the thing was sufficiently explained to us by these other circumstances.

The CHAIRMAN. That is, you have satisfied yourself with the obvious?

Mr. PINCHOT. With the definite things that we could put our fingers on.

The CHAIRMAN. Rather than looking for the occult?

Mr. PINCHOT. Yes, sir; we satisfied ourselves with the things that we could influence rather than with the things that we could not. We are trying to control the forest all the time and are looking for means of controlling it.

The second great branch of our work is the handling of the Government's own forests, our national forests, of which there are now 127,000,000 acres, approximately. These forests lie in all the Western

States and Territories; and, as I described earlier, they control substantially the whole economic progress of the West by controlling the supply of wood, water, and grass. The estimated value of the production of timber and forage and the maintenance of stream flow, through the use, protection, and improvement of the national forests by the Forest Service, is at least 2 per cent a year on \$1,400,000,000, the estimated value of the forest reserves, or \$28,000,000. Since the latter are increasing in value not less than 10 per cent yearly, this estimate is most conservative.

The CHAIRMAN. You may state right here how it is that the forest is the conservator of the water supply, if I use the right term.

Mr. PINCHOT. The forest conserves the water supply by keeping the surface porous and absorptive, and therefore allowing the melting snow and the rain to penetrate the soil instead of running off rapidly over the surface.

The CHAIRMAN. That is, it absorbs rather than sheds the water?

Mr. PINCHOT. Secondly, by supplying, by the waste from the trees, a mechanical obstacle to the movement of the water. It is as though I should take a tablecloth, lay it over that table, and then tip the table up and begin to pour water on it. A good deal of the water would fall off the lower edge of the table, but it would go very slowly, being retained by the tablecloth; whereas if I should pour it on the bare table, it would run off almost without wetting it.

The CHAIRMAN. That is, by means of the leaves and twigs and debris?

Mr. PINCHOT. Precisely.

The CHAIRMAN. By the way, do those, as they decay, produce any fertilizing effect upon the soil?

Mr. PINCHOT. A very strong fertilizing effect upon the soil.

The CHAIRMAN. It is pronounced?

Mr. PINCHOT. Yes; very decided.

The CHAIRMAN. Does the presence of the forests themselves induce a precipitation of rain?

Mr. PINCHOT. We suppose that the presence of the forests in the high mountains increases the frequency of the summer showers over those mountains, and that the total effect on precipitation may be an increase of 10 or 15 per cent. But the statistics that have been gathered in different parts of the world are contradictory, and the influence of the forest that we do positively know about is so important that I think we may fairly neglect the question of rainfall and climate as an important reason for forest conservation.

The CHAIRMAN. I judge from what you say that the area where rainfall might be superinduced is, to a large extent, circumscribed in any event?

Mr. PINCHOT. Yes.

The CHAIRMAN. So that it is not an important factor?

Mr. PINCHOT. It is probably not a very important factor; but the definite, positive, and undisputed reasons why forests should be preserved are so immensely greater than these dubious ones that I do not think we need talk about them.

The CHAIRMAN. That is to say, where you have the forests such rainfall as you do have is retained and absorbed?

Mr. PINCHOT. Is made enormously more useful.

The CHAIRMAN. Yes.

(Witness: Pinchot.)

Mr. PINCHOT. We know positively that the destruction of forests means the destruction of water powers, increase of floods, and diminution of the usable amount of water in the streams.

The CHAIRMAN. That is because the rainfall of the year is more evenly distributed through the year by virtue of its being retained in the soil where the forests exist than would otherwise take place. It runs off in freshets or torrential flows if you do not have this mat of soil upon which are imposed the accumulations of the trees.

Mr. PINCHOT. Exactly.

The CHAIRMAN. To absorb the rainfall and retard its discharge into the valleys below.

Mr. PINCHOT. Whatever may be true about rainfall, there is no question as to the effect of the forests on run-off.

The CHAIRMAN. There is no question about the forests conserving the rainfall you have?

Mr. PINCHOT. Absolutely none.

The CHAIRMAN. Whether they increase the rainfall may be a doubtful question?

Mr. PINCHOT. We do not care much whether they do or not, but they make all the difference between a usable water supply and an unusable one.

One other fact as to water supply: It is often said that the forest does not conserve the snow in the mountains. The argument is made that the late supply of water in the streams is caused, not by the melting of snows which have been preserved under the trees, but by the melting of the great snow banks which occupy the gullies and remain throughout the year, and the argument is based upon this contention that forest preservation in the mountains has no effect on the amount of usable water which the snow produces.

This argument fails to take into consideration the fact that the vast majority of the snowfall never gets into these great drifts in the gullies, but falling over the bare surface more evenly, either runs off rapidly and comes into the streams at once when the great thaws come, or is evaporated, while the snow that melts in the forest is absorbed by the porous forest floor and gets into the mountains themselves, which in the end become the great reservoirs of water. Every mountain is a vast underground lake, so to speak, containing immense supplies of available water which is given out slowly by filtration through the rocks into the streams.

The CHAIRMAN. That is the result of the percolation from the surface down?

Mr. PINCHOT. From the surface down. The forest is the reason why these vast underground supplies are continually replenished.

The CHAIRMAN. Without the forest, and with a hard, impervious soil, the water would not remain there long enough for percolation to take place?

Mr. PINCHOT. Precisely.

The CHAIRMAN. In other words, it would be shed rather than absorbed? That is the proposition, is it not?

Mr. PINCHOT. That is the whole story in two words.

The CHAIRMAN. I suppose that when you come to this question of

the gullies, the area is almost a negligible factor as compared with the total area which is affected by the snowfall?

Mr. PINCHOT. Precisely.

The CHAIRMAN. And no matter how great the accumulation might be, the area over which it is accumulated is so small that it is a very small factor in the whole problem?

Mr. PINCHOT. Precisely. I have often seen snow banks in the high mountains during hot summer weather literally going off into the air. A snow bank on a bare surface under the rays of a hot sun would have absolutely no stream flowing from it. As fast as the snow was turned into water the dry air would take it up, and it would go into the air and be lost. That does not happen under the trees.

So much for water. The development of the West depends, of course, on the development of its transportation facilities; and the railroads have never been able to discover a satisfactory substitute for the wooden tie, and the opinion of the best railroad engineers is that we shall always continue to use wooden ties instead of steel ones. Then no mines, or practically no mines, can be developed without not only timber, but vast supplies of timber; so that the mining interests of the West depend absolutely upon our keeping timber enough in the country to give them sufficiently cheap mine timbers to make development possible. The best paying mines are the low-grade mines, as a rule, and they require vast amounts of timber. So that, in an absolutely definite sense, the preservation of the forests conditions the development of the mining industry throughout the western country, and in the East as well.

Of course the lumberman's industry depends absolutely on forest preservation; and the farmer's business can not be conducted without wood for a vast variety of uses, but most of all for fencing. So that in controlling the supply of water and timber we preserve practically every essential industry of the western country except the grazing; and in controlling the supply of summer range, maintaining and improving it, and increasing its value and carrying capacity, we also find that industry depending on the forest for its continuance.

The CHAIRMAN. What do you include as the "summer range?" That is, what particular character of territory do you designate as summer range?

Mr. PINCHOT. I will answer that in a somewhat roundabout way, if you do not mind.

The CHAIRMAN. Certainly.

Mr. PINCHOT. The western range country consists at the lower levels of great deserts, mainly covered with sagebrush and similar arid-land vegetation, which are sparsely watered, are not available for irrigation because of the lack of large water supplies which can be put upon them, and which can serve no purpose whatever unless they are useful for grazing animals. Those are the winter ranges. Many of them can not be used at all except during the time when the snow is on the ground, and the stock eat snow instead of drinking water.

At a little higher level come the spring and autumn ranges, which are useful after the stock are driven out of the lower country by the

(Witness: Pinchot.)

lack of water, or before the snow is gone from the mountains and the grass has come up. These spring and autumn ranges are mostly in the foothills or on high plateaus outside of the forest reserves.

Next above these come the summer ranges proper, which consist of vast areas of sparse, open forest, under which there are grass and various other fodder plants; of the open parks scattered through the timber lands, and of the vast stretches of old burns, which cover probably a third of the western forest lands which once were timbered, but now are covered merely by grass and other minor vegetation.

Then, finally, there is a certain amount of summer range above the timber line, useful only for sheep, and containing Alpine plants of great value for the finishing feed before the stock goes to market.

The condition of this summer range, of which there is much less than there is of the winter range, is what determines the use of all the rest of it. If the stock can not get into the mountains and use these grasses, then they can not use the rest of the range; and when the forest reserves were made from time to time they put an end to the overuse of these summer ranges in a way that was rapidly destroying all their value. It is a perfectly possible thing to overgraze mountain ranges to such a degree as to destroy their capacity to produce foliage at all.

The CHAIRMAN. Are all the forest reserves of the Government open to grazing by private individuals, subject to the regulation and control of the Government?

Mr. PINCHOT. Subject to regulation; yes.

The CHAIRMAN. Does the Government receive anything for those privileges?

Mr. PINCHOT. It does. Two years ago, for the first time, we announced that a charge would be made for grazing on the public lands in the forest reserves, and we collected the first year \$540,000 from that privilege. This coming summer we will get probably \$600,000 or more.

The CHAIRMAN. That is a net income to the Government, is it?

Mr. PINCHOT. No; it is not a net income.

The CHAIRMAN. What do we have to expend in order to produce that \$600,000 of result?

Mr. PINCHOT. That question requires this answer: When the forest reserves were transferred to the Department of Agriculture the income for the previous fiscal year had been less than \$60,000, under the charge of the Land Office, and the expenditures \$375,000. The gross appropriation for the two the year of the transfer was \$850,140, I think. The income was \$767,000 for the first full year we had charge of it, and the net charge upon the Treasury was about \$400,000 less than it had been before. In other words, we began at once to make the forest reserves pay. At the time of the transfer I agreed that I would never ask Congress for more than a million dollars for running expenses.

The CHAIRMAN. You mean for the whole Bureau?

Mr. PINCHOT. For the whole Bureau; but I would earn the rest, if they would give me the right to do it. This year I have asked for \$900,000 instead of the million, and the income for the present fiscal year will amount to about one and a quarter millions.

The CHAIRMAN. Will it result in making the expenses of your Bureau, taking everything into account, about \$2,100,000?

Mr. PINCHOT. No; the expenses this year will be about \$1,800,000.

The CHAIRMAN. So that you have a margin to the good?

Mr. PINCHOT. We have a margin to the good; and I have promised the Committee on Agriculture that in five years from the transfer the forests will be costing the Government nothing at all.

The CHAIRMAN. That is, your Bureau will be self-sustaining?

Mr. PINCHOT. Yes. It has three years more in which to do it.

The CHAIRMAN. And the sums received by the Bureau for the granting of these privileges—

Mr. PINCHOT. And for timber—

The CHAIRMAN (continuing). Do not result in any permanent impairment of the value of the property, but, on the other hand, predicate an improvement?

Mr. PINCHOT. But on the contrary, the value of the range is very rapidly increasing.

The CHAIRMAN. So that, for instance, the forest reserves, for the purpose that you speak of, are worth more to the Government now than they were when you took them?

Mr. PINCHOT. Very much more.

The CHAIRMAN. And this utilization is a utilization of money that otherwise would have gone to waste?

Mr. PINCHOT. It is money that would not have been paid to the Government at all.

The CHAIRMAN. We simply would have lost it?

Mr. PINCHOT. We simply would have lost it.

The CHAIRMAN. And the ranges would not have been as good as they are now?

Mr. PINCHOT. No. We have already begun this year to increase the number of stock on certain ranges, because of the great improvement that proper regulation has brought about.

The CHAIRMAN. And that is simply a matter of arranging for the proper distribution and arrangement of the people who are interested?

Mr. PINCHOT. That is it.

The CHAIRMAN. And seeing that they simply exercise ordinary business sense in grazing over these territories?

Mr. PINCHOT. The sheep and cattle men are so well satisfied, as a rule, with the forest reserve range regulations, that two weeks ago, at the last annual convention of the American National Live Stock Association (which is the national body representing sheep, cattle, and horses) they passed unanimously and with enthusiasm a resolution asking for Government control of the whole of the open range by the Department of Agriculture.

The CHAIRMAN. That simply brings in a disinterested party to settle the controversies between these people.

If I understand it correctly, you have three zones of grazing, varying in their altitudes in the order in which I will name them: First, the winter zone; second, the spring and fall zone; and, third, the summer zone. Do I get that correctly?

Mr. PINCHOT. Yes, sir. There is also some range which is called all-the-year range, or year-around range; but not very much.

The CHAIRMAN. That is rather negligible in quantity?

(Witness: Pinchot.)

MR. PINCHOT. That lies mostly in the northern part of the country.

THE CHAIRMAN. Over all of this grazing territory you have both the cattle and the sheep industry?

MR. PINCHOT. We have control now only of the summer range.

THE CHAIRMAN. Yes; but, as you said, that is the vital factor in the whole equation?

MR. PINCHOT. It is the vital factor in the whole equation.

THE CHAIRMAN. That is, without the summer grazing they can not round out the whole year?

MR. PINCHOT. Precisely.

THE CHAIRMAN. And it is not practicable for them to undertake to graze their cattle or their sheep without it?

MR. PINCHOT. No.

THE CHAIRMAN. So that if they had the winter and the fall and spring ranges, that would be a matter of no consequence, because there would be a period that they could not get through without the summer range?

MR. PINCHOT. Exactly; and they can not so well raise feed for the summer, because their feed is then growing, as they can carry their stock from one part of the country to another.

THE CHAIRMAN. The character of that country is such, I suppose, that it is impracticable to raise the feed to take care of the sheep and cattle?

MR. PINCHOT. They are raising more and more of it all the time.

THE CHAIRMAN. But up to date they do not raise enough to take care of themselves?

MR. PINCHOT. No; there is nothing that takes the place of the forest reserve range.

THE CHAIRMAN. And of course, generally speaking, I suppose there can not be anything so economical?

MR. PINCHOT. No.

THE CHAIRMAN. Because of course if you can feed the grass on the stem, there is no way you can utilize it any more cheaply than that?

MR. PINCHOT. It is the indispensable factor in the western range business.

THE CHAIRMAN. Now go right along.

MR. PINCHOT. We are dealing with the timber on the forest reserves in two ways: The Secretary of Agriculture is authorized by law to give away, under what we call "free use," a certain amount of timber to settlers and other bona fide residents of the region who need it for their own personal purposes.

THE CHAIRMAN. That is, off the Government reserves?

MR. PINCHOT. Off the Government reserves; and that is a very important factor in some of the reserves. The number of "free use" permits for a single reserve in one year has risen as high as 3,000, given to small men in the neighborhood, who are using it for their own domestic purposes, but not for sale or trade.

Secondly, we sell timber by auction to the highest bidder, to men who need it for business purposes.

THE CHAIRMAN. What is that—stumpage?

MR. PINCHOT. We sell stumpage under very strict rules and regulations as to how the timber is to be cut, and how the young growth is

to be protected, and how a second crop is to be secured. In these ways the forests are supplying very large amounts of timber annually, but not by any means, as yet, as much as they are growing. In other words, the productive capacity of the forest reserves in timber has scarcely been touched as yet.

The CHAIRMAN. You mean by that that you are increasing rather than decreasing the supply?

Mr. PINCHOT. Very largely. The annual saving in young growth and commercial timber by prevention of fire is at least \$20,000,000. The saving of wood through economy in manufacture and use is not less than \$5,000,000 a year. New timbers brought into use through the work of the Service are worth \$5,000,000 a year more. Preservation treatment of timber through Service methods saves at least \$6,000,000 a year. The increased value of ties treated alone amounts to over \$5,000,000 annually.

The CHAIRMAN. That is, the forests, under the system of treatment you are now pursuing, are increasing faster than they are decreased by use and consumption?

Mr. PINCHOT. Yes. An acre of timber will grow a definite number of board feet every year. The cut from all the acres is at present immensely less than those acres are capable of producing. In other words, we have scarcely begun to develop the timber supply of the forest reserves.

The CHAIRMAN. Are all of the unlocated timber lands or wild lands of the Government now segregated into forest reserves?

Mr. PINCHOT. Not yet.

The CHAIRMAN. How much remains outside of the reserves?

Mr. PINCHOT. It is difficult to say, but probably fifty or sixty million acres.

The CHAIRMAN. Is that land located so that it can be created a reserve?

Mr. PINCHOT. It is being examined and put into reserves as rapidly as we can be perfectly sure of its character.

The CHAIRMAN. What character do you require in order to create a reserve?

Mr. PINCHOT. We require natural forest land, whether or not it happens to have trees on it at the moment. The fact that a mountain slope, which used to bear trees and will serve the public better under timber than in any other way, is for the moment denuded of trees, has nothing to do with the case. We propose to put all land to its best use; and we take in these mountain ranges, partly timbered, some of them completely timbered, on that general line.

The CHAIRMAN. Is this delineation of the geographic distribution under the Bureau of Biology of any value to your Service in locating forest reserves?

Mr. PINCHOT. We have gotten some very valuable information from it as to the distribution of trees and as to the probable location of forest reserves. It has been of great use to us in that way. But the principal service which it has rendered us is through a study which it has just begun of the methods of destroying vermin of various kinds, predatory wild animals, on the reserves. The study of the wolves made about a year ago by Vernon Bailey, a member of the

(Witness: Pinchot.)

Biological Survey, is the best work of the kind that has ever been done, and it has developed a method that is going to permit us to control the depredations of the gray wolves on the cattle and sheep of the West, which is of very great service.

The CHAIRMAN. Why is not the preservation of the forest from these vermin a matter that is legitimately within the scope of your own Bureau?

Mr. PINCHOT. It is not the depredation of these animals on the trees themselves that we talk about so much as it is upon the users of the forest. We shall come to the more refined part of it later on; but at present it is the cattleman who loses his calves, and the horseman who loses his colts, that is the important fellow.

The loss at present through gray wolves in the West is enormous. It has not been fully understood before just where those wolves dened and how to get at them. Bailey has developed the fact that in the northern part of the country they den down low, out of the forest reserves. In the southern part of the country they den in the edge of the forest reserves. In both places by going after them in the spring, after the pups are born, and while there is still snow on the ground, it is possible for a good man to trail up the old wolves, dig out the pups, and substantially get them all every year; and Bailey has, in order to prove that it could be done, gone out and done it, and photographed the pups, both of the wolves and coyotes. Of course, in doing that a man gets a certain amount of shots at the old wolves, and occasionally he gets an old she or an old dog wolf. But the important thing is that by proper measures you can prevent their increase.

That is of very great service. We expect to get very great help from the Bureau of Biology in taking up the other predatory animals, like the lynxes, the mountain lions, and the coyotes; and then, later on, we shall have a great deal to ask in the way of help in fighting the ground squirrels and gophers and prairie dogs, which are a curse in many parts of the country.

The CHAIRMAN. Those are animals that affect the timber per se, are they not?

Mr. PINCHOT. No; they affect the range; they live on the grass. We shall get help in fighting the porcupines, which live on the timber; and many questions will come up (some of them have already arisen) in which we shall need help in destroying nut-feeding animals, such as squirrels and chipmunks, which live on the seed of the trees, and prevent reproduction by getting nearly all the seed crop every year. That is one of the important factors in preventing reproduction in many parts of the West. We shall need help in preventing that, and, as well, in finding out what birds are useful in controlling the insect pests which are very dangerous indeed in some of the western forests—very dangerous in any pure forest, any forest of one kind of tree. There are very many other ways in which the Bureau of Biology will be of use to us.

The CHAIRMAN. Do the squirrels and the chipmunks apparently serve any useful purpose?

Mr. PINCHOT. I do not think they do. I have often seen one of them have a pile as big as this table of pine cones, or pieces of cones.

The CHAIRMAN. So far as we know, the squirrel is simply a cumberer of the ground?

Mr. PINCHOT. That is all. He is good to eat.

The CHAIRMAN. But put up in too small quantities to be of much use?

Mr. PINCHOT. Well, he is very good in pie. I used to be very fond of squirrel pie. I liked to shoot the squirrels first and then eat the pie.

I think those are our principal lines of work.

The CHAIRMAN. Those are your principal lines of work; yes. Now, how do you treat a forest? Take a forest that is in average condition, and that you propose to treat so as to subject it to the best and most modern scientific methods of forest preservation and at the same time give to the owner the maximum of current utilization.

Mr. PINCHOT. That is it. Suppose I deal with a particular forest?

The CHAIRMAN. Yes; that will bring it right down to a business proposition.

Mr. PINCHOT. Yes. Say we have a forest of spruce in Maine, for example; a forest belonging to the Great Northern Timber Company. This is an actual case. They had about 300,000 acres of spruce land and a very large mill up at Millinocket. They wanted to know how much land they would have to have to keep that mill running perpetually, and how they ought to treat their forest in order to get a continual supply of timber.

We made a very careful study of the region tributary to them and found out that they did not have timber land enough to keep that mill going forever, and they accordingly purchased enough more land so that they could keep cutting—so that after they got through one cut the next one would be ready. Roughly, what they do is to cut out all trees above a given diameter—10 inches, I believe, in that case—but leaving a sufficient number of seed trees of larger size to supply the necessary seed. Then, in getting this timber out, they do two things in particular. They see to it that they do not smash the young stuff or cut it out, cut up young trees to corduroy roads with, or to use as skids that they do not need, and they do not leave a whole lot of merchantable timber, which they had the habit of doing before in a good many places, in tops and stumps. We have gotten them now to cut down from a stump of 3 feet high to a stump 8 or 10 inches (at the most, 12 inches) high in the spruce, thereby saving what in the Adirondacks are called the “fiddle butts.” There is a saving of a great deal of timber in the “fiddle butts,” and where a man is selling his timber by scale the effect of that is very important in throwing the logs into the next higher range. As you know, the log is measured at the upper end. If you cut a 12-foot log 18 inches lower down on the stump, you are very likely to find that the top of that log, instead of measuring 13 or 14 inches, will measure 15 or 16 inches, and the man who is selling that log gets the scale accordingly. We have computed, on the basis of very large numbers of measurements, exactly the definite saving in the Adirondacks from this lower cutting of spruce stumps, and it amounts to between 2 and 3 per cent.

The CHAIRMAN. The cutting of a long stump to a large extent has been induced in some of those sections by the great depth of snow when the cutting operations are going on?

(Witness: Pinchot.)

Mr. PINCHOT. We make them shovel the snow away, and they do it.

The CHAIRMAN. Do they use a cross-cut saw to any great extent in felling trees?

Mr. PINCHOT. We make them use the saw all they possibly can. It saves wood. Of course there has to be a certain amount of under-bit to make the tree fall right.

The CHAIRMAN. Yes.

Mr. PINCHOT. But there is not so much loss there as there is in cutting down by the ax altogether.

The CHAIRMAN. Then this results in thinning out the old growth and giving the remaining growth more light and more soil, more nourishment, and a better opportunity to continue growth and reproduction?

Mr. PINCHOT. It increases its rapidity, and the forest begins to produce timber. A virgin forest of considerable size, as a rule, is not increasing in value at all.

The CHAIRMAN. That is because it has reached its maximum of growth under the existing conditions, is it not?

Mr. PINCHOT. No; it is because it has reached a balance. The crown cover is complete. There are leaves enough there to take up all the sunlight, and the young trees that are growing up, growing more wood, are balanced by the old trees that are falling down and decaying; and a thousand years from now, if you leave it alone, there will be probably just about as much timber on the ground as there is now. The minute you remove these old trees that are ripe, then the young trees begin to produce more timber; and your stationary forest becomes a factory of wood, and the wealth of the country is increased in proportion.

The CHAIRMAN. Do you thin out the small trees where they are growing too thickly?

Mr. PINCHOT. As a rule we do not, and it does not pay us to do it. In some cases we can.

The CHAIRMAN. There is not any definite area in which trees are left to grow—that is, any number of square feet that you leave for a tree?

Mr. PINCHOT. No; decisions of that sort are based on the condition of the crown. That is the important thing. The crown contains the lungs, and the health of the tree depends more than upon anything else on the amount of growing space it has.

The CHAIRMAN. That is largely a question of the top?

Mr. PINCHOT. Entirely a question of the top.

The CHAIRMAN. How do you get at the yearly growth of the tree and its life? Do you do it in any other way except by cutting the tree from time to time and counting the rings indicating the yearly growth?

Mr. PINCHOT. Suppose we cut down a spruce tree and saw it up into 16-foot logs. Then we count the rings on the stump, beginning from the outside in. The last ring on the outside represents the same year all over the tree, of course; and the annual ring is merely a cross-section of a complete coat of woody tissue that is laid on all over the whole tree. You count in from the outside, and we will say the tree is 210 years old. Then you go up 16 feet, at the top of a log, and count in from the outside, and find that the tree is 180 years

old. Then we know that it took that tree thirty years to grow from the place where the stump was cut to the top of the next log—probably because it was crowded by other trees, and had no chance.

Then we go to the top of the next log, 16 feet more, and find that it is 160 years old. It took it twenty years to grow that distance. At the top of the next log we find that it grew 16 feet in, say, ten years or fifteen years. Now, by measuring in in each case to the center we can plat or make a picture of that tree, showing exactly how thick it was and how tall it was for every year of its growth, by substitution; and we make what we call a stem analysis of that tree. In other words, we reproduce the growth of that tree from the time it was the height of the stump until the very year it was cut.

By taking a large number of such measurements and averaging them we can reach an average statement as to the age and size of trees of every diameter, an inch apart, say. Then we measure every tree on a large number of acres, taking a strip 1 chain wide and 10 chains long to the acre, by a well-developed system. As this strip is run right through the forest you get very much more nearly average figures than you could by taking square acres, besides which it is a much shorter measure. Then we are able to reconstruct an average acre for that forest, and we know how many trees of each diameter that average acre has and how fast the trees of each diameter are growing and we know what the total number of board feet is. Then we can say we know what the production in board feet per acre per annum of that forest is.

Now, if we cut out all the trees down to 10 inches in diameter we know how fast the 6, 7, 8, and 9 inch trees are growing, and we can carry that forward and tell, at the end of fifteen, twenty, twenty-five, or thirty years, knowing how many trees would be left per acre and how fast they will grow, what amount of spruce will be present on the average acre in that forest at the end of a given time. Then we know what spruce stumpage is worth now; we throw in the inevitable increase for good measure; we know what the taxes are and the other expenses, and we can prove to a man, by definite figures, whether or not it is worth his while to practice forestry.

The CHAIRMAN. So that the rings in the tree diminish as you go up the tree?

Mr. PINCHOT. Yes.

The CHAIRMAN. In proportion to the age of the tree?

Mr. PINCHOT. Precisely. You see, every bit of wood that is formed in a tree remains exactly where it was formed. If you drive a nail into a tree 6 feet from the ground it will always be 6 feet from the ground if the ground stays where it was. The size of a tree increases by additions at the end. It is not a stretching process. It is just a piece put on each year.

The CHAIRMAN. That is, each yearly growth, with each additional layer, simply increases the height of the tree?

Mr. PINCHOT. Yes.

The CHAIRMAN. And then you get the rate of growth per year by simply taking segments of the tree?

Mr. PINCHOT. Yes.

The CHAIRMAN. So it comes down almost to a demonstration?

Mr. PINCHOT. It is a demonstration. You see, the whole work

(Witness: Pinchot.)

of the Forest Service is intentionally based on perfectly clear-cut business principles. We advocate nothing in the way of forestry that will not pay. We do not ask a man to practice forestry for any other reason than that it is good business policy.

The CHAIRMAN. You get these rates of growth, and I suppose that is incidental to the quite different conditions that obtain in connection with plant life?

Mr. PINCHOT. Precisely.

The CHAIRMAN. That is, one section is more fertile than another?

Mr. PINCHOT. Yes.

The CHAIRMAN. It contains more nutritive products?

Mr. PINCHOT. Yes.

The CHAIRMAN. And has more water?

Mr. PINCHOT. Yes; or it has been less abused.

The CHAIRMAN. Yes.

Mr. PINCHOT. One place may be burned over.

The CHAIRMAN. Yes.

Mr. PINCHOT. And then there may be a lot of trees at present of no value in the forest. A man may want spruce, and he may have a whole lot of hemlock that he can not use. We study the conditions of his forest, as he has them, and give him an opinion based on what he wants to do.

The CHAIRMAN. That is governed by his local market to a certain extent?

Mr. PINCHOT. That is governed completely by his local market. If he can not sell a particular kind of timber we never advise him to cut it.

The CHAIRMAN. A lot of people down in my country have white birch forests that they are cutting up very rapidly for spool wood and for novelties.

Mr. PINCHOT. Yes.

The CHAIRMAN. And I tried to get them at one time to look at the literature that this Bureau sent out, but up to date with not very great success. Is not that a kind of wood that is susceptible of very rapid reproduction?

Mr. PINCHOT. Yes; it grows very fast.

The CHAIRMAN. And when it is bringing anywhere from five to eight and ten dollars a cord a wood lot of a few hundred acres of that kind of trees is as good as money in the bank.

Mr. PINCHOT. Yes; exactly.

The CHAIRMAN. That is, if you treat it right?

Mr. PINCHOT. Yes.

The CHAIRMAN. There is no difficulty in reproducing that material?

Mr. PINCHOT. No.

The CHAIRMAN. And as far as this question of reproduction is concerned, when you have the presence of a certain tree in a certain locality, whether it is hard or soft, there is no trouble about reproducing that kind of tree in that place?

Mr. PINCHOT. As a rule, none at all; and all through the East there is very little trouble with reproduction, anyway. We are very fortunate in that respect.

The CHAIRMAN. How long have the forestry methods been practically utilized by people in the country generally—lumbermen and private owners?

Mr. PINCHOT. We made the offer of assistance to them in July, 1898, and since that time we have always had more demands for our services than we could supply.

The CHAIRMAN. Have you had sufficient practical results in the development of the forest so that you would be able to show from well-defined data the progress made and the results accomplished by the application of forestry methods?

Mr. PINCHOT. We can show excellent results so far as we have gone; but the life of a forest is so long a thing compared with the seven or eight years that this work has been going on that it is impossible to say that we have gotten final results yet.

The CHAIRMAN. Have the results up to date been so obvious that they are appreciable?

Mr. PINCHOT. Yes.

The CHAIRMAN. And demonstrable?

Mr. PINCHOT. Yes. Perhaps the best answer that I can give you to that is that the National Lumber Manufacturers' Association, which is the national organization of lumbermen, appointed a committee not long ago to raise \$150,000 for the endowment of a chair in lumbering in the Yale Forest School, on the ground that they were going to need foresters in their business, and they had better begin to see that the foresters who were turned out of the schools had a practical knowledge of lumbering. These men all believe that forestry is coming into their business, and a great many of them are beginning to practice it.

The CHAIRMAN. I suppose one of the most vigorous drains upon the timber or forest supplies of the country is that made by the paper manufacturers?

Mr. PINCHOT. I think that is about 9 per cent of the total cut.

The CHAIRMAN. I had supposed it was even more than that. Can you tell to what extent the men engaged in the paper-manufacturing industry are availing themselves of the forestry methods?

Mr. PINCHOT. The Great Northern Paper Company, of Maine, is following them closely, and many of the other paper companies, I understand, are taking up our methods. All the best and most progressive lumbermen in the country, users of wood on a large scale, are with us.

The CHAIRMAN. What is the greatest use—that is, the greatest demand upon the supply? You say the use for paper is about 9 per cent?

Mr. PINCHOT. Nine per cent. I suppose timber for construction is the largest item.

The CHAIRMAN. That is the largest one?

Mr. PINCHOT. That or fuel; I do not know which of those would come first.

The CHAIRMAN. Is there any legislation in any of the States with reference to the legal protection of the forest?

Mr. PINCHOT. Yes; in all the States.

The CHAIRMAN. As to the manner of their being utilized and cut?

Mr. PINCHOT. Oh, no; simply as to fire and trespass, and so on.

(Witness: Pinchot.)

The CHAIRMAN. Oh, yes; but what I mean is, is there any legislation in any of the States, so far as you know, with reference to the manner in which the owners of the forests shall operate their properties with reference to their preservation?

Mr. PINCHOT. None whatever in any State.

The CHAIRMAN. Is that a matter that your Bureau considers feasible?

Mr. PINCHOT. Not at present.

The CHAIRMAN. Why not?

Mr. PINCHOT. Because I do not think public opinion is ready for it.

The CHAIRMAN. It may be feasible, but not practicable?

Mr. PINCHOT. Yes; it is coming, unquestionably.

The CHAIRMAN. Perhaps that might be the distinction. What I meant by that was whether it was a matter that could wisely and legitimately be controlled by legislative action.

Mr. PINCHOT. It will be eventually, without any question.

The CHAIRMAN. But your idea is that to-day it is not practicable on account of the fact that the people are not educated up to it?

Mr. PINCHOT. That is the size of it exactly. In some of the States they have been talking of it very strongly, notably in California; and it is unquestionably coming.

The CHAIRMAN. I would like to ask you something with reference to the age of trees. This is merely as a matter of curiosity, perhaps, but estimates have been made of the age of the *Sequoia gigantea* that are growing in those parks somewhere near the Yosemite, putting their age at two or three thousand years, I think.

Mr. PINCHOT. Some of them are 4,000 years old.

The CHAIRMAN. How did they reach that conclusion?

Mr. PINCHOT. By counting the rings.

The CHAIRMAN. In this same way?

Mr. PINCHOT. Yes. We have records of forest fires that scorched those trees seventeen hundred years ago by finding the charcoal covered over inside.

The CHAIRMAN. That is the record in the tree itself?

Mr. PINCHOT. The record in the tree itself.

The CHAIRMAN. Then some of those trees have been cut down, so that at the stump they have counted 4,000 rings?

Mr. PINCHOT. Oh, very many of them have been cut down; yes. The great majority of those trees are now in private ownership. It is a shame.

The CHAIRMAN. How fine are those rings when you get that immense number?

Mr. PINCHOT. Oh, sometimes 40 or 50 to an inch.

The CHAIRMAN. But the result is reached in exactly this same way?

Mr. PINCHOT. Yes.

The CHAIRMAN. What is the estimated value of the forests of the country?

Mr. PINCHOT. The estimated value of the timber in the national forests, the forest reserves, is \$700,000,000. What the total standing timber is worth I do not know.

The CHAIRMAN. That is about 20 per cent of the whole, or one-fifth?

Mr. PINCHOT. Yes.

(Witness: Pinchot.)

The CHAIRMAN. I want to inquire as to one or two of these various projects. Here is "Administration, dendrology." I suppose I can find out what that means by reference to the dictionary.

Mr. PINCHOT. I can tell you. Whereabouts is that?

The CHAIRMAN. At the top of page 225.

Mr. PINCHOT. Oh, yes. The dendrologist is the botanical expert of the Forest Service. We have referred to us a great many questions of identification of specimens of trees, and a great many questions involving the anatomy and physiology of wood—such, for example, as the use of the southern pine for turpentine. Such things fall to the province of the dendrologist, who may be said to be the purely scientific man of the Forest Service, although he deals likewise with exceedingly practical questions. For example, we have devised and put into operation a new method of turpentinizing the long-leaf pine in the South, and thereby we have revolutionized the turpentine industry; and the saving, the difference per annum between the new method and the old, amounts to not less than \$3,500,000 a year.

The CHAIRMAN. What is that?

Mr. PINCHOT. We are making a saving in the turpentine industry of the South which when it is fully developed, when it has covered the industry on the basis of the present production, will amount to more than \$10,000,000 a year.

The CHAIRMAN. How is that brought about—by an increase of the yield or a more effective utilization of the yield?

Mr. PINCHOT. Mainly by an increase of the quality of the yield. Under the old method of boxing, which means cutting a hole in the base of the tree and then making a scar or face on the tree above it, and letting the turpentine run down over that surface into the hole, to be dipped out afterwards, the best product was yielded in the first year. Then the second year this face or scar was cut higher up the tree, and the gum which ran out had to run down over the old surface before it got into the box. The third year it went higher, and the fourth year it went higher, and the fifth year the tree died.

The third and fourth year product under the old method were of very little value, indeed, because as the gum ran down over the old surface the spirits of turpentine, the most valuable product, was nearly all evaporated. Little was left but the rosin. Under our method, by which the gum runs into a clay cup immediately under the scar, the gum being guided into the cup by two small galvanized-iron gutters, we get just as valuable a product the fourth year as we do the first, and the tree is almost as vigorous the fourth year as it is the first.

The CHAIRMAN. Do you have to keep elongating the scar?

Mr. PINCHOT. You have to keep moving it up to get new surface.

The CHAIRMAN. Wounded surface?

Mr. PINCHOT. New cells—exactly; new turpentine cells, I suppose. We are now experimenting to reduce the width and depth of the cut, and see if we can not completely save the tree from destruction; and we believe that we can get not merely an equally good production, but a better production, and set aside much of the drain on the vitality of the tree under the present method. This is an improvement which has been widely accepted through the South, and in fact

(Witness: Pinchot.)

has only been limited in its application by the ability of the cup manufacturers to turn out their product.

The CHAIRMAN. And this has been going on how long?

Mr. PINCHOT. The first work began, I should think, six years ago. That is simply a guess.

The CHAIRMAN. That will give, then, you would say, a concrete result in that one industry of about \$10,000,000?

Mr. PINCHOT. Yes.

The CHAIRMAN. That is, annually?

Mr. PINCHOT. Yes.

The CHAIRMAN. That really is more than a bagatelle.

Mr. PINCHOT. Yes. We are doing some good work, I think, in the Forest Service.

The CHAIRMAN. That is under the head of "Turpentine orcharding" here, I suppose?

Mr. PINCHOT. Yes.

The CHAIRMAN. Have you introduced new varieties of trees from abroad in connection with the work of your Bureau, or is that outside of your scope?

Mr. PINCHOT. We are doing some of that work, but I do not believe very greatly in experiments of that sort at present. The trees we have now have been adapted to their localities by hundreds of generations of natural selection, and the chance of our getting valuable forest trees from abroad is comparatively slight, although we are making some effort to find arid-land trees to use for planting in excessively dry places. The introduction of trees from abroad is mainly a question of arboriculture, with which we do not deal at all.

The CHAIRMAN. That comes nearer to the work of the Bureau of Plant Industry?

Mr. PINCHOT. Yes.

The CHAIRMAN. Does any Bureau deal with the rubber tree?

Mr. PINCHOT. Yes; the Bureau of Plant Industry.

The CHAIRMAN. That comes rather within their scope?

Mr. PINCHOT. Yes.

The CHAIRMAN. Are these forestry methods that are being utilized and applied by your Bureau entirely in line with development in foreign countries in that same subject?

Mr. PINCHOT. In general they are, although the details of their methods are entirely inapplicable to us.

The CHAIRMAN. On account of the circumscribed area over which they are applied?

Mr. PINCHOT. No; on account of the difference in economic conditions.

The CHAIRMAN. Oh, yes; the different results to be accomplished?

Mr. PINCHOT. The different results to be accomplished. For instance, in Germany and France they can transport for considerable distances by rail fagots made of the extreme ends of branches, where we can not transport cord wood by rail in a great many places.

The CHAIRMAN. That is simply because there is a greater demand there?

Mr. PINCHOT. It is because of the totally different economic conditions.

The CHAIRMAN. And for the smaller sizes the demand is great and the price paid is larger?

Mr. PINCHOT. Yes, sir; exactly.

The CHAIRMAN. That justifies putting them up in that shape and the expense of transportation?

Mr. PINCHOT. Yes.

The CHAIRMAN. Here we have such a very large supply and a correspondingly small demand that it does not result in a price that would justify that sort of an operation?

Mr. PINCHOT. Exactly; and we are not trying to find conditions of that kind. We accept them, and handle them and deal with them as we must.

The CHAIRMAN. That would not be practicable because you could not change that situation?

Mr. PINCHOT. Exactly.

The CHAIRMAN. Do all the forest countries have forestry regulations?

Mr. PINCHOT. Yes.

The CHAIRMAN. How long have they obtained in Germany and England and France?

Mr. PINCHOT. In Switzerland I may say I have spent a good deal of time in a forest that was under management before America was discovered. In Germany forestry began in its present form shortly after the French Revolution, and in France it was the destruction of forests at the time of the French Revolution that created the interest in forestry which resulted in their present methods.

The CHAIRMAN. That war left the country to a large extent denuded?

Mr. PINCHOT. Yes.

The CHAIRMAN. And have they replaced it?

Mr. PINCHOT. They have replaced a great deal of it, but they have in France now only 17 per cent of forests.

The CHAIRMAN. That is, 17 per cent of that country is devoted to forests, as against 33½ per cent of ours.

Mr. PINCHOT. Yes; about 36 per cent with us.

The CHAIRMAN. Do they have there legislation that requires the application of forestry methods?

Mr. PINCHOT. Very strict legislation, especially in Germany, France, and Switzerland.

The CHAIRMAN. Do they have it in England?

Mr. PINCHOT. England has almost no forests, you might say. England is a country almost completely under cultivation or else denuded.

The CHAIRMAN. Practically a great garden?

Mr. PINCHOT. But in India they have a very admirable system of forestry, thoroughly well developed and fairly remunerative.

The CHAIRMAN. And of the character that prescribes legal regulations under which forests are to be preserved and utilized?

Mr. PINCHOT. Yes. You see, in India the government is the landlord, and practically all the land belongs to the government.

The CHAIRMAN. And it takes care of its own property?

Mr. PINCHOT. And it takes care of its own property.

(Witness: Pinchot.)

The CHAIRMAN. Are there any countries outside of continental Europe and India that practice forestry?

Mr. PINCHOT. Yes; the French are practicing forestry in Algeria; the Russians are practicing it in Turkestan and Siberia. The Japs have very admirable systems of forestry in their country. The English have made some progress in Australia and in New Zealand. It may be said in general that we were among the very latest—in fact, we were the last of the great civilized countries (and many of the half-civilized countries)—to take up and apply the principles of forestry. We are way behind in the procession.

The CHAIRMAN. So that, as a matter of fact, all these various problems had substantially been demonstrated by other countries before they were taken up by us?

Mr. PINCHOT. But along very different lines.

The CHAIRMAN. Yes.

Mr. PINCHOT. The cases in which we could apply their solutions of the problems to our problems were very few indeed.

The CHAIRMAN. But the foundation principles, I suppose, are common to all?

Mr. PINCHOT. They are common to all and are very well understood all over the world.

The CHAIRMAN. And the foundation principles have been applied nearly everywhere, subject to peculiar existing local conditions which might modify their application?

Mr. PINCHOT. Precisely. May I add a word?

The CHAIRMAN. Certainly. I wish you would add anything that you like.

Mr. PINCHOT. I will just say that the enormous use of forest products in this country has so far exceeded the production from the forests that we are practically certain to suffer very severely within the next decade or two from shortage of timber supply. We have already begun to find, in the excessive prices of certain grades of lumber, the results of this shortage; and it is perfectly clear, with our increasing population and our enormous material development, that our forests are not going to be able to meet the demand. While we shall get a great deal of timber from the Canadian forests and possibly some supply from Siberia, there can be no reasonable doubt that the United States, even if we do the best we can, will suffer severely from timber famine. The only thing we can hope for is to make that suffering as little as possible by the use of energetic measures.

The Forest Service is hampered in its work from a lack of available men. It is impossible to use the men imported from other countries, because they do not understand the American ways of doing business. Our only hope, therefore, is to educate foresters in the United States, and the supply is so small, compared with the obviously coming demand, that we are going to suffer very greatly for our lack of forestry.

For example, if our present national forests were manned with foresters in the same proportion as the German forests, instead of having about 200 trained men we should have not less than 15,000. Instead of less than a thousand forest rangers, we should have over

110,000. We have allowed the forest destruction to get so large a lead over forest preservation that we shall inevitably have great trouble.

The CHAIRMAN. I suppose the comparison with Germany would be subject, however, to this possible qualification—that is, taking into account their area and supply, the service there would be rather more intensified than might be necessary here?

Mr. PINCHOT. Much more; but the time is not very far in the future when we shall have as large a population per square mile as Germany has now. I do not mean to-morrow, but as the life of a nation goes it is a pretty short time.

The CHAIRMAN. What do you say about the necessity of the projects known as the Appalachian Reserve and the White Mountain Reserve?

Mr. PINCHOT. Those are purchases by the Government which are, in my judgment, inevitably coming. The people of the States concerned can not possibly afford to allow the destruction of their water supplies to go on. In the southern Appalachian district they suffered in one twelvemonth a loss from floods officially ascertained to be \$18,000,000. Congress will ultimately be compelled to act, and when it does—

The CHAIRMAN. Are the conditions such that those floods were, as a demonstration, traceable to the denuding of the forests?

Mr. PINCHOT. Directly; directly. For example, those floods carried away buildings some of which had been on the banks of the streams for fifty years; and gradually, as the denuding went on, the floods kept getting higher and higher until they eventually reached them in that way. It is a perfectly clear-cut proposition. The southern Appalachians are composed of very steep mountains, very smooth in outline, with very little rock, and of an exceedingly washable soil. The people in that neighborhood cultivate largely by making deadenings—that is, girdling the trees and growing their crops of corn under the deadened trees. The surface soil on these steep slopes is washed away so completely in three or four years that the fertility of the field is gone, and then they move away to another place and make another deadening in a new place. In the meantime the absorbing power of the surface has been destroyed; much of the loose vegetable soil has gone down into the streams and been deposited along the bottoms of them, thus tending to raise the bottoms above their previous levels and make it easier for the floods to get out; and when the torrential rains, which are common in that region, come, they simply sweep off over the surfaces and do this tremendous damage.

I have washed my face in a stream, standing on both sides of it, letting it run in between my legs, which, when it was high, had carried around hemlock trees 3 feet in diameter and 40 feet long and piled them up in windrows.

The CHAIRMAN. In the season of torrential floods?

Mr. PINCHOT. In the season of torrential floods, because the watershed of that system was denuded.

The CHAIRMAN. That being the case, the watershed having been denuded and a great deal of the soil having been carried down, is it possible ever to renovate that country and reclaim it?

(Witness: Pinchot.)

Mr. PINCHOT. Yes.

The CHAIRMAN. How are you going to get the soil back?

Mr. PINCHOT. The soil gets back by the products of the new growth. After a while these slopes are taken possession of by grass, some of them will be planted, and little by little we shall have a return of previous conditions. In some cases it will be a comparatively long matter, but in all cases it can be done.

The CHAIRMAN. I should think that where the soil had actually gone down into the valley and been carried down it would take you an immensely long time to recover the soil and rebuild it.

Mr. PINCHOT. It is only the surface soil. These mountains are composed of very easily decomposed rock, and when the upper surface wears away then there is soil.

The CHAIRMAN. There is disintegration going on?

Mr. PINCHOT. Disintegration going on underneath, and the soil is quite rapidly replaced.

The CHAIRMAN. In a way the soil reproduces itself?

Mr. PINCHOT. It does—exactly.

The CHAIRMAN. That is, your idea is that if the opportunity can be offered to protect it from torrential flow the soil will gradually reproduce itself?

Mr. PINCHOT. It will without any question. What is going to happen is that Congress will ultimately have to pay four or five times as much for about a quarter as much land as it could have bought for the original price.

The CHAIRMAN. We have had presented to us a proposition, as I understand it, which contemplates, on their theory and under existing conditions, an ultimate expenditure of some thirty or forty millions of money.

Mr. PINCHOT. No.

The CHAIRMAN. I think they have succeeded in creating that impression. I do not know whether there is any foundation for it or not.

Mr. PINCHOT. There is not any to my knowledge. The original plan was for about ten millions.

The CHAIRMAN. Would ten millions be the maximum of the White Mountain and Appalachian projects combined?

Mr. PINCHOT. Ten millions would put things in such a situation, I presume, that it would be possible to purchase the rest that would be necessary with the product of the forest itself. We could get the strategical points for that much money.

The CHAIRMAN. That minimizes the project somewhat.

Mr. PINCHOT. Yes.

The CHAIRMAN. I mean the expenditure.

Mr. PINCHOT. It is a great pity that the thing was not done ten or fifteen years ago when it first came up, because at that time we could have bought any quantity of heavy timber land there for a dollar an acre, with the standing timber on it. Now we are going to have to pay a great deal more than that for the denuded land. But it is a thing that will have to come.

The CHAIRMAN. Could that land be purchased cheaper by the States than it could by the General Government?

Mr. PINCHOT. You see it is a question of purchasing land in one State to protect lands in another State. No; I think the General Government can buy it as cheaply as anybody.

The CHAIRMAN. You have given considerable thought to that question, I imagine?

Mr. PINCHOT. Yes.

The CHAIRMAN. Have you ever thought about the question as to whether it was in the proper scope of the exercise of the Federal power?

Mr. PINCHOT. I have supposed that you could scarcely ask one State to buy lands for the protection of another State.

The CHAIRMAN. I doubt whether that of itself would be a sufficient reason for the existence of the constitutional power. It might be a very important practical reason. Have you ever examined with any care the question as to whether it is a Federal purpose—that is, within the scope of the Federal power?

Mr. PINCHOT. I have always supposed that, being an interstate project, it was within the scope of the Federal power.

The CHAIRMAN. That is, that it was rather involved in the commerce proposition?

Mr. PINCHOT. It is a protection to interstate commerce.

The CHAIRMAN. Yes; but you can not exactly predicate the idea of "interstate" unless there is something that relates to commerce.

Mr. PINCHOT. It is like this (I am not a lawyer; I wish I were): It is a thing that somebody will have to do for the protection of our citizens. It is a thing that the individual States can not do.

The CHAIRMAN. Is not that perhaps a vigorous assumption?

Mr. PINCHOT. No.

The CHAIRMAN. For instance, there is no physical difficulty, I take it, in North Carolina, we will say. I do not know whether that hits the case or not, but North Carolina has within its borders certain territory. I do not imagine that there is anything that would physically interfere with North Carolina appropriating money and buying up the territory within its borders. It may not be probable, and perhaps, practically speaking, not possible, but I do not suppose that as a legal proposition there is any physical obstacle to its doing so.

Mr. PINCHOT. I do not suppose there is any physical obstacle to its buying lands to protect Ohio and Kentucky and Tennessee, but I think it is pretty clear that it will not do it.

The CHAIRMAN. That may be; but the practical difficulty involved in that proposition might not necessarily give rise to the constitutional power in the United States Government to do that. I do not know whether you have investigated that or not.

Mr. PINCHOT. I am not lawyer enough—no; I have simply seen that there was a necessity, and that it was a larger proposition than any State should meet, because it would be asking one State to tax itself for the benefit of another State. There being an interstate question involved, it seems to me that it must fall properly within the functions of the National Government. That it is an absolutely necessary thing to be done, and that it will have to be done for the protection of those interests, there can be no question whatever.

(Witness: Pinchot.)

The CHAIRMAN. That is, somebody ought to do it?

Mr. PINCHOT. Somebody will have to do it; and somebody will do it.

The CHAIRMAN. Inasmuch as the States, while they can, probably will not, then the inference is that the Federal Government not only ought to, but will have the power to do it?

Mr. PINCHOT. That I know nothing about.

The CHAIRMAN. No; but that is practically the proposition that lies in your mind?

Mr. PINCHOT. If a problem which involves a number of different States can come properly within the scope of the Federal Government, then I suppose this would, just like national quarantine, or national customs, or river and harbor matters.

The CHAIRMAN. Unfortunately, the courts have just held that the national quarantine is simply, so far as we are concerned, interstate transportation and the control of the seaboard, and that the regulations recently adopted for quarantine in the States are not valid for that reason.

Mr. PINCHOT. I do not know any more reason why you should not appropriate money to keep silt from being deposited in the river—

The CHAIRMAN. Than we should appropriate to dig it out?

Mr. PINCHOT. That is it exactly.

The CHAIRMAN. I think that comes nearer to it than anything else you have suggested.

Mr. PINCHOT. I am not wise in the law.

The CHAIRMAN. But your judgment is, without any equivocation, that as a practical proposition it is simply necessary?

Mr. PINCHOT. It is absolutely necessary, and unquestionably will be done. It is exactly like the Sibylene books—we shall have to pay more money and get less the longer we wait. Not only that, but the cost of repairing the damage will be increased enormously by delay. France has had to deal with a similar problem in the Alps, and has spent many, many millions of dollars to repair damage which might have been stopped in the early stages if it had only taken hold then.

The CHAIRMAN. That is, it has these same propositions involving torrential floods?

Mr. PINCHOT. Yes.

The CHAIRMAN. Caused by the failure to retain in its proper, natural place the accumulated and surplus moisture?

Mr. PINCHOT. Precisely. Whole counties were depopulated by these floods; the people were driven out, and the French Government has had to take hold, and has been at work for many years recovering the drainage basins of these torrents and building expensive stone dams and in other ways gradually replacing the stable conditions that were destroyed.

The CHAIRMAN. That is, trying to re-create the original natural conditions?

Mr. PINCHOT. That is it, at enormous expense.

The CHAIRMAN. Of course France is not embarrassed by the same constitutional limitations that we are, but the practical conditions are the same?

(Witnesses: Pinchot, Price.)

Mr. PINCHOT. The practical conditions are the same. Of course I have not gone into constitutional law, because I am not capable of it.

The CHAIRMAN. You do not have any occasion to.

Mr. PINCHOT. I do not have any occasion to, but I know that this thing will have to be done.

The CHAIRMAN. Do you think of anything further you wish to say?

Mr. PINCHOT. No, sir.

The CHAIRMAN. Do you think of anything, Mr. Price?

Mr. PRICE. No, sir.

The CHAIRMAN. I think of nothing further. We are very much obliged to you, Mr. Pinchot.

(The committee thereupon adjourned.)

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
Saturday, February 16, 1907.

The committee this day met.

Present: Messrs. Littlefield (chairman) and Samuel.

**ADDITIONAL STATEMENT OF MR. GIFFORD PINCHOT, CHIEF OF
THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. Upon examining the Congressional Record under date of February 14, 1907, I find that certain criticisms have been made in the Senate of your Bureau and the manner in which it has been handling some of the funds at its disposal. Under the circumstances it seemed to me proper to call the attention of the Senator making the criticisms to the fact that we were examining the expenditures of the Department of Agriculture, and among others those of your Bureau, and I stated to him that I would be glad to have him furnish me with any suggestions that would tend to elicit facts along the lines of his criticism, and Senator Heyburn has very kindly handed to me his suggestions, and with them as a basis I wish to call your attention to the suggestions that he makes in detail.

Will you be kind enough to state how much land you have included in the forest reserves upon which there is no merchantable timber?

Mr. PINCHOT. In the absence of exact surveys it is impossible to answer that question in detail, but it is probable that not less 30,000,000 acres of land in the forest reserves do not at the present time contain merchantable timber. This land consists in part of land above the timber line; in part of old burns with the old timbers still standing on them, and in part of old burns now covered with grass. In creating forest reserves it has been the definite policy to include land whose best use was seen to be for forest purposes, whether at the moment it contained merchantable timber or not, just as agricultural land is taken by a settler for agricultural purposes, although at the moment it contains no agricultural crops.

The CHAIRMAN. Under what authority have you included such lands as you have included in the forest reserves?

(Witness: Pinchot.)

Mr. PINCHOT. Section 24 of the act of March 3, 1891 (26 Stat. L., 1095), provides that the President may order from time to time lands set aside wholly or in part covered with timber or brush as forest reserves and shall proclaim the boundaries thereof.

The CHAIRMAN. Have you included as forest reserves anything outside of what has thus been designated by the President in proclamations?

Mr. PINCHOT. No.

The CHAIRMAN. So everything you have included in forest reserves, whether merchantable timber or otherwise, whether burns or otherwise, whether covered by brush or otherwise, has all been within the limits specifically defined by the President's proclamations?

Mr. PINCHOT. No one else has any authority to create forest reserves, and none has been created otherwise.

The CHAIRMAN. Have you included any territory within forest reserves outside the territory designated by the President?

Mr. PINCHOT. There is no authority to do so. It can not be done, and never has been done.

The CHAIRMAN. So whatever has been done in relation to the question of including merchantable or nonmerchantable timber within the limits of forest reserves has been done by the President himself?

Mr. PINCHOT. Precisely.

The CHAIRMAN. How much land have you included in forest reserves valuable principally for grazing?

Mr. PINCHOT. The forest reserves contain much forest land at present deforested and whose principal value at the moment is for grazing. It is impossible to give exact figures, for the reasons stated in the last answer, but we look forward to reforesting all such lands eventually; and the forest reserves contain no land whose value for other purposes is greater than for forest purposes, except as, incidentally, small areas here and there, which it was impossible to separate out, lie within the boundaries. Under the mineral-land laws and under the act of June 11, 1906, any mineral or agricultural lands may be put to mineral or agricultural purposes as effectually inside the forest reserves as outside.

The CHAIRMAN. As I understand it, under the law you do not include anything within forest reserves?

Mr. PINCHOT. I have no functions of that kind whatever.

The CHAIRMAN. I suppose the Presidential proclamations are based upon recommendations made by you?

Mr. PINCHOT. They are in most cases.

The CHAIRMAN. So that, so far as there are Presidential proclamations, as a rule, they have followed your recommendations?

Mr. PINCHOT. Of late, as a rule.

The CHAIRMAN. How much land have you included in forest reserves that are mineral in their character?

Mr. PINCHOT. In the absence of exact surveys it is quite impossible to answer that question. In general, it may be said that there are vast areas of mineral lands inside the boundaries of the forest reserves. That Congress specifically intended that this mineral land should be developed is proven by the provision that mineral lands may be located under the mineral-land laws as freely inside the forest reserves as outside the forest reserves.

(Witness: Pinchot.)

The CHAIRMAN. Will you be kind enough to quote and place in the record the legislation to which you refer?

Mr. PINCHOT. The sundry civil appropriation act of June 4, 1897 (30 Stat. L., 36), provides:

Nor shall anything herein prohibit any person from entering upon such forest reservations for all proper and lawful purposes, including that of prospecting, locating, and developing the mineral resources thereof: *Provided*, That such persons comply with the rules and regulations covering such forest reservations.

The CHAIRMAN. Can you state approximately the number of acres of mineral land now included in forest reserves?

Mr. PINCHOT. No one knows anything about that. Much of that land has not been classified, and it is wholly impossible to give even a reasonable approximation.

The CHAIRMAN. How do you make the investigation upon which you base the recommendation for a proclamation for a forest reserve?

Mr. PINCHOT. Usually the first step is either a petition from western men for the creation of a forest reserve or a recommendation from one of our own men that a certain area is suitable for a forest reserve. When evidence enough has been submitted to make it probable that it is so, we ask for a withdrawal of the land pending an examination.

The CHAIRMAN. Do you give any hearing of any kind?

Mr. PINCHOT. I am coming to that. We ask for a withdrawal pending an examination. The withdrawal is made on rough lines and often includes much land which ought not to be in the permanent reserve, for the reason that we do not know at that stage of the work where the proper lines ought to lie. Then a very careful field examination is made by an experienced man from the Forest Service, and a map is prepared giving the classification of the land.

The CHAIRMAN. This withdrawal is in the nature of an interlocutory, tentative judgment, subject to review and confirmation later on?

Mr. PINCHOT. Precisely. A map is prepared giving the merchantable timber, the nonmerchantable timber, the brush land, the burnt-over areas, the open grazing land, and the agricultural land. A second map is prepared which gives by legal subdivisions the ownership of all land included in the proposed reserve, so we know precisely the homestead entries, the patented land of all kinds, State locations, school lands, and so on. The careful report which accompanies these maps and conclusions—

The CHAIRMAN (interrupting). Is this map made by men of your service who have visited the locality?

Mr. PINCHOT. Yes; and who have studied it carefully on the ground.

The CHAIRMAN. A personal inspection?

Mr. PINCHOT. Yes. The same man who makes the maps furnishes the report, and upon the basis of his recommendations, which are carefully reviewed in the office and which I finally pass upon in person, a recommendation is prepared for submission to the Secretary of Agriculture and by him to the Secretary of the Interior, asking him to have such a proclamation prepared and to submit it to the President.

The CHAIRMAN. That goes to the Secretary of the Interior?

(Witness: Pinchot.)

Mr. PINCHOT. Yes; through the Commissioner of the Land Office for his review, and it finally reaches the President from the Secretary of the Interior.

The CHAIRMAN. Is there provision or opportunity for people being heard who are interested in whether the lands should or should not be included?

Mr. PINCHOT. Yes.

The CHAIRMAN. What is the opportunity?

Mr. PINCHOT. The effect of the withdrawal is to notify everybody in that neighborhood that a forest reserve is contemplated.

The CHAIRMAN. How do they get that notice?

Mr. PINCHOT. The notice is given to the local land office and immediately gets into all the newspapers.

The CHAIRMAN. Is that simply incidental or is that a practice?

Mr. PINCHOT. I am not sure whether the land office makes the publication or not, but, at any rate, it becomes known at once that a withdrawal has been made. The newspaper correspondents here in Washington watch very closely, and the information that a withdrawal has been made reaches the western people immediately. Then the examiner who goes on the ground makes his purpose known. He meets people all over the region, and one of the points to which he gives special attention in his report is the condition of public sentiment with regard to the proposed reserve, what interests are for it, and what interests are against it, and why.

The CHAIRMAN. That involves the question as to the effect of the reserve upon local conditions?

Mr. PINCHOT. Yes; and by that method we get a much more widely representative idea of what the public sentiment is than would be possible by hearings, because we get the opinions of more people.

The CHAIRMAN. You do not give formal advertised hearings?

Mr. PINCHOT. We do not.

The CHAIRMAN. But you hear anybody who has occasion to interview your representative?

Mr. PINCHOT. Precisely.

The CHAIRMAN. As a matter of practice, do people avail themselves of the opportunity to present their views to your representative on the ground?

Mr. PINCHOT. It is a matter of keen interest to everyone in the neighborhood of a proposed reserve, and the matter is very fully discussed for months.

The CHAIRMAN. Has there been any instance where no interest has been taken and the local people have not taken the pains to present their views to the examiner?

Mr. PINCHOT. Not of late years, to my knowledge. Years ago, and much of the opposition to the creation of forest reserves is a survival of the friction created at that time, the practice was to make reserves without this special field examination and without giving an opportunity for people to be heard. That practice was put an end to by President Roosevelt and has not existed for the last five or six years.

The CHAIRMAN. Have there been general protests against including grazing and mineral lands in the forest reserves?

Mr. PINCHOT. Yes; there have been protests against the creation of forest reserves for very many different reasons, and there have been of late years very many more petitions for the creation of reserves than protests against them.

The CHAIRMAN. How many homestead entries have you included in forest reserves?

Mr. PINCHOT. That question could be answered only after months of research in the general and local land offices. There are very large numbers of homestead entries in forest reserves, and I hope there will be very many more, for it is a fundamental principle of the Forest Service in all this matter that the land shall be put to its best use. Whatever land we may have in any forest reserves that will be more useful for agriculture than it will be as a part of the forest reserve we want to have used for that purpose.

The CHAIRMAN. Does not the reservation for forestry purposes in some way impair the value of the homestead entry?

Mr. PINCHOT. It has been often said that by preventing the development of the surrounding lands and the increase of settlement a forest reserve cuts down the value of the homestead entry. That would be true if the premises upon which the argument is based were also true. As a matter of fact, the act of June 11, 1906, provides the means by which any agricultural land in any forest reserve can be located for a home upon a showing that it is agricultural in its character.

The CHAIRMAN. When located for a home under those circumstances do they take it outside the restrictions of the Forest Service?

Mr. PINCHOT. There are no restrictions upon any such location made in the forest reserves.

The CHAIRMAN. Are we to understand that a man can locate his homestead in a forest reserve and can handle the homestead in accordance with his own judgment in relation to the preservation of the forest thereon?

Mr. PINCHOT. Absolutely.

The CHAIRMAN. Unhindered by the Forest Service?

Mr. PINCHOT. The Service has no more control over a man's entry than it has over the Capitol grounds.

The CHAIRMAN. Has it not a control over the manner in which he uses his entry after he has it made?

Mr. PINCHOT. Not a bit.

The CHAIRMAN. Do you mean to say if a homestead entry is included in a forest reserve that that does not impair the right of the homesteader to develop it in any way?

Mr. PINCHOT. He can develop it in any way whatsoever. He has precisely the same rights that he would have if there was no forest reserve.

The CHAIRMAN. And he can destroy the forest on his entry?

Mr. PINCHOT. He can do just what he likes.

The CHAIRMAN. A man can go into a forest reserve and locate a homestead?

Mr. PINCHOT. The proceeding is this: Under the act of June 11, 1906, upon an application being made for a homestead entry in a forest reserve the Secretary of Agriculture must cause an examination to be made to ascertain whether the land is really more valuable for

(Witness: Pinchot.)

agricultural than forest purposes. If the examination determines it to be in fact agricultural land, then the man who makes the application has a preference right to enter the land, and he may then make his entry exactly as he would if the land were outside of a forest reserve.

The CHAIRMAN. Suppose the Secretary adversely determines that question?

Mr. PINCHOT. Then, if he adversely determines that question, it is for the reason that the land is not agricultural in character, but more valuable for some other use. It often happens that the would-be entryman wants it for some other reason.

The CHAIRMAN. But in that case the homesteader's right is defeated?

Mr. PINCHOT. No; because the homesteader has no right.

The CHAIRMAN. His privilege, then. He has no power to make his privilege effective?

Mr. PINCHOT. He has the right to make his privilege effective on any land that is suitable for homesteading, but if he wants to locate a very heavy body of timber under the guise of a homestead entry, and thereby defeat the purpose of the forest-reserve law, he is not permitted to do so.

The CHAIRMAN. So that in the last analysis it depends upon the judgment of the Secretary of Agriculture as to whether a homestead entry shall be made or not?

Mr. PINCHOT. It depends upon the judgment of the Secretary of Agriculture as to the character of the land applied for.

The CHAIRMAN. If in his judgment the character of the land is such that it is not properly subject to homesteading, that prevents a man from following his homestead claim?

Mr. PINCHOT. Precisely; as Congress has specifically authorized the Secretary to do.

The CHAIRMAN. So that in the last analysis it is really in the power of the Secretary of Agriculture under the law to determine whether or not a homestead shall be in a forest reserve?

Mr. PINCHOT. The law directs him the right to say what the character of the land is.

The CHAIRMAN. Yes; and from that follows, of course; the right to say whether it should be subject to homesteading or not?

Mr. PINCHOT. Yes; in a forest reserve.

The CHAIRMAN. Will you quote as a part of your answer the law to which you refer?

Mr. PINCHOT. It is a short law. I will insert it.

AGRICULTURAL SETTLEMENT.

[Act of June 11, 1906. (34 Stat. L., 233.)]

The Secretary of Agriculture may, in his discretion, and he is hereby authorized, upon application or otherwise, to examine and ascertain as to the location and extent of lands within permanent or temporary forest reserves, except the following counties in the State of California: Inyo, Tulare, Kern, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, San Bernardino, Orange, Riverside, and San Diego, which are chiefly valuable for agriculture, and which, in his opinion, may be occupied for agricultural purposes without injury to the forest reserves, and which are not needed for public purposes, and may list and

describe the same by metes and bounds, or otherwise, and file the lists and descriptions with the Secretary of the Interior, with the request that the said lands be opened to entry in accordance with the provisions of the homestead laws and this act.

Upon the filing of any such list or description the Secretary of the Interior shall declare the said lands open to homestead settlement and entry in tracts not exceeding one hundred and sixty acres in area and not exceeding one mile in length at the expiration of sixty days from the filing of the list in the land office of the district within which the lands are located, during which period the said list or description shall be prominently posted in the land office and advertised for a period of not less than four weeks in one newspaper of general circulation published in the county in which the lands are situated: *Provided*, That any settler actually occupying and in good faith claiming such lands for agricultural purposes prior to January first, nineteen hundred and six, and who shall not have abandoned the same, and the person, if qualified to make a homestead entry, upon whose application the land proposed to be entered was examined and listed, shall, each in the order named, have a preference right of settlement and entry: *Provided further*, That any entryman desiring to obtain patent to any lands described by metes and bounds entered by him under the provisions of this act shall, within five years of the date of making settlement, file, with the required proof of residence and cultivation, a plat and field notes of the lands entered, made by or under the direction of the United States surveyor-general, showing accurately the boundaries of such lands, which shall be distinctly marked by monuments on the ground, and by posting a copy of such plat, together with a notice of the time and place of offering proof, in a conspicuous place on the land embraced in such plat during the period prescribed by law for the publication of his notice of intention to offer proof, and that a copy of such plat and field notes shall also be kept posted in the office of the register of the land office for the land district in which such lands are situated for a like period; and further, that any agricultural lands within forest reserves may, at the discretion of the Secretary, be surveyed by metes and bounds, and that no lands entered under the provisions of this act shall be patented under the commutation provisions of the homestead laws, but settlers, upon final proof, shall have credit for the period of their actual residence upon the lands covered by their entries.

SEC. 2. That settlers upon lands chiefly valuable for agriculture within forest reserves on January first, nineteen hundred and six, who have already exercised or lost their homestead privilege, but are otherwise competent to enter lands under the homestead laws, are hereby granted an additional homestead right of entry for the purposes of this act only, and such settlers must otherwise comply with the provisions of the homestead law, and in addition thereto must pay two dollars and fifty cents per acre for lands entered under the provisions of this section, such payment to be made at the time of making final proof on such lands.

SEC. 3. That all entries under this act in the Black Hills Forest Reserve shall be subject to the quartz or lode mining laws of the United States, and the laws and regulations permitting the location, appropriation, and use of the waters within the said forest reserves for mining, irrigation, and other purposes; and no titles acquired to agricultural lands in said Black Hills Forest Reserve under this act shall vest in the patentee any riparian rights to any stream or streams of flowing water within said reserve; and that such limitation of title shall be expressed in the patents for the lands covered by such entries.

SEC. 4. That no homestead settlements or entries shall be allowed in that portion of the Black Hills Forest Reserve in Lawrence and Pennington counties, in South Dakota, except to persons occupying lands therein prior to January first, nineteen hundred and six, and the provisions of this act shall apply to the said counties in said reserve only so far as is necessary to give and perfect title of such settlers or occupants to lands chiefly valuable for agriculture therein occupied or claimed by them prior to the said date, and all homestead entries under this act in said counties in said reserve shall be described by metes and bounds survey.

SEC. 5. That nothing herein contained shall be held to authorize any future settlement on any lands within forest reserves until such lands have been opened to settlement as provided in this act, or to in any way impair the legal rights of any bona fide homestead settler who has or shall establish residence upon public lands prior to their inclusion within a forest reserve.

(Witness: Pinchot.)

The CHAIRMAN. Would the fact that you have included in a forest reserve any homesteads, if you went no further—would that of itself tend in any way to embarrass the homestead right?

Mr. PINCHOT. Not in the slightest.

The CHAIRMAN. If the question were raised, it would be for the Secretary of Agriculture to say whether the particular homestead included in the forest reserve was land of such a character as not properly to be subject to homesteading?

Mr. PINCHOT. Any claim established before the establishment of a forest reserve is subject to no one's jurisdiction.

The CHAIRMAN. A man who has made a homestead entry acquires an absolute prior right?

Mr. PINCHOT. Yes; an absolute prior right.

The CHAIRMAN. And there is no forest reservation you could make that can defeat or impair his right?

Mr. PINCHOT. Not in any way whatsoever. The act of June 11 is to the effect that if there should be any land left in a forest reserve suitable for homestead entries it should be put to that use.

The CHAIRMAN. Is it the intention of your Department to include land that is fit for agricultural purposes in the forest reservations in the first instance?

Mr. PINCHOT. It is not, and it is only because the lay of the land prevents us from cutting out here and there a quarter section or sometimes a section of agricultural land lying within a body of pure timber land that this act of June 11 was passed. It is the intention of the Forest Service at every point to favor legitimate homestead entry.

The CHAIRMAN. You say you are not able to give the number of homestead entries that are included in the forest reserves up to date?

Mr. PINCHOT. Those figures have not been prepared.

The CHAIRMAN. Where could those figures be found?

Mr. PINCHOT. They could be given for certain forest reserves that have been examined under the method I have described, but for the forest reserves that were created before that method was devised it would take a long examination to get the figures.

The CHAIRMAN. Where would that information be obtainable?

Mr. PINCHOT. In the local and General Land offices.

The CHAIRMAN. All these applications for land in forest reserves go through the Land Office?

Mr. PINCHOT. They do.

The CHAIRMAN. And the Secretary of the Interior or the Land Office has the responsibility of determining the question of homestead entries? Or is that taken into account in approving any recommendation you might make?

Mr. PINCHOT. They look into questions of title and check up the results which we give them; but unless for some other reason they think they ought to object, the recommendation is passed through at once.

The CHAIRMAN. That involves a more or less careful examination on their part as to land on which homestead entries have already been made?

Mr. PINCHOT. Yes.

The CHAIRMAN. Do I understand that it is in the land offices only that a record of these entries is to be found?

Mr. PINCHOT. Except as we have made maps showing the condition of title at the time of the creation of reserves, which we have done with the more recently created reserves. Our maps are made from the local land offices.

The CHAIRMAN. So that that information comes from the land offices and from the Department of the Interior as to recent entries?

Mr. PINCHOT. Yes; all of it.

The CHAIRMAN. How many public schools have you included in your forest reserves?

Mr. PINCHOT. Nobody knows, and that would take long investigation to ascertain.

The CHAIRMAN. Under what circumstances have public schools been included at all?

Mr. PINCHOT. Doubtless many public schools have been included in the territory of forest reserves. For example, there are in many places considerable towns lying wholly within the boundaries of forest reserves, and the schools in those towns would be included. So would the public schools of school districts lying in the reserves. The policy of the Service to promote the settlement of all agricultural lands which may have been included in the forest reserves necessarily involves the policy of favoring the extension of schools, and that policy had gone so far that in the last agricultural appropriation bill it was provided that 10 per cent of all the proceeds from forest reserves should be turned over annually to the States, to be used by the counties in which the reserves lie for public schools and roads.

The CHAIRMAN. That simply means the proceeds from the use, whatever it may be? If they continue to get anything from the use, they get the sums thus received, and if there are any sales they get the sums received from the sales?

Mr. PINCHOT. Precisely. They get 10 per cent of all the gross proceeds.

The CHAIRMAN. Could you give any approximation of the settlements in which the schools are located?

Mr. PINCHOT. It would be substantially impossible. I presume that the school records of the different States might yield this information, but so far as I know it does not exist in Washington.

The CHAIRMAN. Have you received protests or objections to the creation of forest reserves in the territory occupied by schools?

Mr. PINCHOT. I am not aware that any protest against the creation of a forest reserve has ever been received from the school authorities of any State or county. It has frequently been mentioned, in protests coming from other bodies, that there would be schools in the area included in the reserves, which is right and proper.

The CHAIRMAN. I understand the policy you are operating upon is calculated and intended by your Bureau to develop schools?

Mr. PINCHOT. Precisely. We hope there will be schools in all the reserves.

The CHAIRMAN. The purpose being, if I get your idea aright, to have all the territory within the limits of the forest reserves that can be utilized for agricultural purposes thus utilized?

(Witnesses: Pinchot, Adams.)

Mr. PINCHOT. All of it.

The CHAIRMAN. And whenever taken up under these circumstances, the territory thus entered upon is entirely relieved of any limitation or embarrassment in connection with the forest-reserve regulations?

Mr. PINCHOT. Precisely.

The CHAIRMAN. You have not in detail the method of handling the money you get from this service?

Mr. PINCHOT. No; but here is Captain Adams—

The CHAIRMAN. He went all over that with me and told me about that.

Suppose I ask you this question: A serious question has been raised about what is called the "irresponsible" character of the fund that is administered by your service in connection with moneys collected from grazing and other sources and disbursed by your service, and I think you ought to be able to state in detail just exactly how that fund is administered and what is done with it, so that we can see whether or not it is surrounded by proper restrictions. Does not that cover it?

Mr. PINCHOT. That covers it.

The CHAIRMAN. Can you state that?

Mr. PINCHOT. I can; and will very gladly do so. I have brought Captain Adams with me. He is the fiscal agent of the Forest Service. He is bonded for that purpose. He knows the terms in detail, and knows exactly what has been done with all those moneys, and I should be very glad to have you hear from him on that subject.

STATEMENT OF MR. JAMES B. ADAMS, SPECIAL FISCAL AGENT OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. Now, Mr. Adams, I understand you have immediate charge of the fiscal operations of the Bureau in connection with the fund collected by the Forest Service, from grazing, and so forth, and disbursed by it in turn?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. I wish you would explain in detail just exactly what funds you collect, the circumstances under which they are collected, and under what conditions and regulations with reference to accuracy and care in the protection of the Government, and the circumstances under which those funds are disbursed. I wish you would do it in your own way. Please give us a full statement, because we would like to have in the record a complete statement on that matter.

Mr. ADAMS. Under the provisions of section 5 of the act of February 1, 1905, which reads as follows—

That all money received from the sale of any products or the use of any land or resources of said forest reserves shall be covered into the Treasury of the United States and for a period of five years from the passage of this act shall constitute a special fund available, until expended, as the Secretary of Agriculture may direct, for the protection, administration, improvement, and extension of Federal forest reserves.

and the amendment to this section in the agricultural appropriation act of June 30, 1906, which reads as follows—

That the forest-reserve special fund provided for in section five of the act approved February first, nineteen hundred and five, entitled "An act, etc."

(Witness: Adams.)

shall continue until otherwise provided by law; but after June thirtieth, nineteen hundred and eight, it shall not be expended except in accordance with specific estimates of expenditures to be made from said fund for the succeeding fiscal year, to be submitted by the Secretary of Agriculture with the estimates of appropriation in the annual Book of Estimates.

the Forest Service is authorized to receive money from the sale of timber or from the use of resources of the forest reserves, and it is collected under regulations of the Secretary, which provide that no one but the fiscal agent—

The CHAIRMAN. You collect under this act for timber?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. How much did you collect in the fiscal year 1905 for timber, and how much in the fiscal year 1906?

Mr. ADAMS. From the date of the act until the end of the fiscal year 1905 the receipts under this act amounted to \$60,142.62.

The CHAIRMAN. Was that for timber alone?

Mr. ADAMS. It was for timber alone; the special privilege and grazing had not been organized.

The CHAIRMAN. So that up to 1905 this sum was substantially all that was collected by the Bureau from forest reserves?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. How much was collected from the various sources during the fiscal year 1906?

Mr. ADAMS. From the sale of timber \$245,013.49, from grazing \$514,692.87, and from special privileges \$7,513.60.

The CHAIRMAN. What are these special privileges that you speak of?

Mr. ADAMS. The use of land for occupancy, the right of way for telephones and telegraph lines, and for construction of dams and reservoirs, and the equipment for power plants, for power-plant sites.

The CHAIRMAN. Under what circumstances were these privileges granted? Are they granted by written leases or conveyances?

Mr. ADAMS. The permittees make application to the Forester, and the agreement is prepared which they sign, which determines the conditions and terms under which they are to enjoy the privilege.

The CHAIRMAN. Are those privileges perpetual in their character in any instance, or are they all on some time?

Mr. ADAMS. All are terminable at the discretion of the Secretary of Agriculture, except when a specific term is fixed in the agreement itself, and in any event must terminate under the law in case the forest reserve ceases to exist.

The CHAIRMAN. That is, if the territory on which they are situated is taken out from under the forest-reserve system, then the privilege granted by the Secretary terminates by force of law?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. And do I understand you that all these privileges that have been given are terminable at any time, at the discretion of the Secretary, except when a term of years is definitely fixed?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. So that all the occupancy under what you call "special privileges" is at the will of the Secretary?

Mr. ADAMS. Up to the present time. The amounts paid are usually, in the case of occupancy, an annual charge—

(Witness: Adams.)

The CHAIRMAN. A sort of annual rental?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. Are your leases or permissions or agreements practically uniform in character?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. I wish you would put right into the record one of your blank forms showing the general terms and conditions under which the privileges are granted.

Mr. ADAMS. Yes, sir. Here is one:

[Form 832.]

UNITED STATES DEPARTMENT OF AGRICULTURE—FOREST SERVICE.

SPECIAL PRIVILEGE AGREEMENT.

(Kind of privilege.) (Date.) ——— Forest Reserve.

(I or we), ———, of ———, hereby apply for permission to (occupy, inclose, or cultivate land; construct and maintain a corral, pasture, or drift fence; erect and occupy a building; erect and operate a sawmill; construct and use a road, trail, canal, ditch, flume, pipe line, tunnel, dam, tank, or reservoir; construct and operate a private railroad, wire-rope conveyor, telegraph, telephone, or electric power line, or other right of way or occupancy. If land, give area; if drift fence, give length; if building, give description; if sawmill, give description, state whether steam or water, circular or band, and daily capacity; if road, give width and kind; if ditch, flume, pipe line, tunnel, dam, tank, or reservoir, give dimensions; if railroad, give gauge and character of construction; if power line, give description and capacity), located as follows: (Describe lands to be occupied, if unsurveyed, by metes and bounds with reference to a road or stream or well-known natural landmark; right of way by terminal points, direction, and lands to be occupied. Maps must accompany applications for rights of way), for the purpose of (object to be served or demand to be supplied. Show clearly whether enterprise is personal or commercial. When water use is involved, state the number of cubic feet per second). (I or we) do hereby, in consideration of the granting of the privilege applied for herein, promise to pay to the special fiscal agent, Forest Service, at Washington, D. C., the sum of \$—— (insert the terms of payment). And (I or we) agree, should this application be approved, to comply with all regulations and instructions of the Department of Agriculture governing forest reserves, and especially with the following conditions:

1. To secure permission from all owners or claimants of any private lands or claims to be occupied in connection with this privilege, and not to interfere with the just or legal rights of others.

2. To cut only such trees as interfere with carrying out the terms of this agreement, and do no unnecessary damage to young growth and trees left standing, and to handle and saw no timber illegally cut.

3. To cut timber and dispose of refuse as directed by forest officers, and to guard the purity of streams.

4. To assist forest officers in the execution of their duties by furnishing information, and to do everything possible to prevent forest fires and to assist in fighting the same without waiting to be called upon to do so.

5. To pay the United States for any damage caused by the use or occupation of the forest reserve under the permit applied for herein.

6. To kill no game out of season, nor otherwise violate the game laws or regulations.

7. To begin bona fide construction within —— months, complete within —— years, and actually exercise the privilege at least —— days each year, unless time is extended or shortened by written consent of the Forester.

8. No Member of or Delegate to Congress is or shall be admitted to any share, part, or interest in this agreement, or to any benefit to arise therefrom. (See secs. 3739-3742, inclusive, U. S. Rev. Stats.)

9. This permit shall not be transferable, and shall terminate whenever the forest reserve for any reason ceases to exist, and upon breach of any of the conditions under which this privilege is granted.

FOREST SERVICE.

(Witness: Adams.)

10. Timber used will be obtained (state whether by purchase or under free-use permit, from right of way, or elsewhere).

11. (Any further conditions required in the case.)

(I or we) further agree, if required, to give satisfactory bond for faithful compliance with all of the above requirements.

Signed in duplicate this _____ day of _____, 190-.

(Signature of two witnesses required.)

Approved and privilege granted under the above conditions for a period _____.

Date: _____, 19-.

Mr. SAMUEL. Under what conditions do the forest reserves cease to exist?

Mr. ADAMS. By elimination; by Presidential proclamation; under existing law (act June 4, 1897, 30 Stat. L., 36); by the same process that brings them into existence.

The CHAIRMAN. That is, the President includes them under forest reserves by proclamation and excludes them from forest reserves by similar proclamation?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. Well, now how much did you receive for these privileges that have been granted under these circumstances during the fiscal year 1906?

Mr. ADAMS. \$7,513.60.

The CHAIRMAN. These resources and timber privileges granted and those for grazing are the only sources from which revenue is derived from the forest reserves?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. Can you give an approximation of the amount that will be received, with reasonable accuracy, for the fiscal year 1907 from these three sources? If so, you may state it.

Mr. ADAMS. About \$1,250,000. That is the estimate given in the Book of Estimates for the fiscal year 1908.

The CHAIRMAN. Now, you may state the manner in which the collection of this fund is made by the Bureau.

Mr. ADAMS. Under the regulations of the Secretary no one but the fiscal agent of the Forest Service is authorized to receive moneys arising under the act of February 1, 1905. The regulations provide that the money shall be transmitted directly from the purchaser or user to the fiscal agent at Washington. The purchaser is furnished by the forest officer who negotiates the transaction on the ground with this printed form letter of transmittal, upon which the case is designated.

[Form 861.]

LETTER OF TRANSMITTAL.

[This form will be furnished by forest officers to persons who have occasion to make payments to the Forest Service. Payments must be made by postal or express money order or orders, or by national-bank draft on New York, drawn payable to the special fiscal agent, and must be accompanied by this

(Witness: Adams.)

form letter. Under no circumstances will forest officers receive payments in money. Signature of payer is required; signature by mark must be witnessed.]

_____, 190—.

JAMES B. ADAMS,

Special Fiscal Agent, Forest Service, Washington, D. C.

SIR: There is inclosed herewith a (money order or draft—please see note at top of form) for \$_____.

This deposit is (first, second, or third payment; payment in full; to cover advertisement; to accompany bid, etc.) on account of (timber sale, special privilege, grazing permit, settlement for trespass, cooperative agreement, etc. In first payment on timber sale of \$100 or less only, give briefly species, material, quantity, and price per thousand feet B. M., log or cord, as the case may be.)

(Signature of payer) _____.

(Post-office) _____.

(Spaces below this line must be filled out by the forest officer.)

[Designate transactions in accordance with instructions on page 140 of the Use Book.]

_____ Forest Reserve.

(Signature of forest officer) _____.

At the same time the forest officer furnishes the prospective transmitter or depositor with this form letter of transmittal he sends a duplicate to the Forester, thereby advising the latter of the fact that a certain amount of money may be expected from a certain person.

Mr. SAMUEL. That comes from the fiscal agent?

Mr. ADAMS. That comes from the forest officer in charge of the administration of the reserve.

Mr. SAMUEL. He acts as a fiscal agent for you?

Mr. ADAMS. No, sir. The forest officer in charge negotiates the transaction in the field. He never handles money. He simply tells the depositor to send his money to the fiscal agent in Washington, telling him how much to send, and then notifies the Forester of the fact that he has negotiated with a certain person to send a certain amount to the fiscal agent at Washington on account of a specified transaction. This affords the Forester an opportunity to ascertain whether or not the fiscal agent receives and accounts for the remittance.

Mr. SAMUEL. Does he determine the amount of the negotiation, or is that submitted to the Forester at Washington?

Mr. ADAMS. That is also submitted to the Forester in important classes of transactions for his approval, the supervisor having authority to approve in many minor classes of transactions.

Mr. SAMUEL. And close up the matter?

Mr. ADAMS. Yes. But in all cases a full record of the transaction is furnished to the Forester by the supervisor.

Mr. SAMUEL. Is he limited by any amount in the transactions?

Mr. ADAMS. There are definite limitations placed by the Secretary's regulations upon the transactions that the supervisor may approve.

The CHAIRMAN. You have given all the various steps and checks that are involved in the collection of the fund. Is the Government protected by bonds furnished by any of these parties that have the handling of these moneys?

Mr. ADAMS. The only person that handles money is the fiscal agent, who is bonded.

The CHAIRMAN. Who is the fiscal agent?

Mr. ADAMS. I am.

The CHAIRMAN. What bond do you give?

Mr. ADAMS. Fifty thousand dollars.

The CHAIRMAN. How much money do you have on hand at any one time, of this fund, as a rule?

Mr. ADAMS. Never in excess of \$30,000. On the basis of the estimated receipts for the present year (\$1,250,000), the average would be about \$4,000 for each working day.

The CHAIRMAN. You say "never in excess." What I want is, how much is the maximum aggregate that you at any one time have on hand as the fiscal agent. You say at times you receive \$30,000 a day. What do you do with this money when you receive it?

Mr. ADAMS. It is immediately deposited in the Treasury of the United States.

The CHAIRMAN. If you received \$30,000 to-day, when would you make deposits?

Mr. ADAMS. To-morrow morning.

The CHAIRMAN. To what credit does that sum stand, to the credit of the Treasurer of the United States?

Mr. ADAMS. No, sir. The money is received in the form of postal money orders, express money orders, or national-bank drafts on New York, which is the form required by the Secretary's regulations. These are deposited with the Treasurer first for collection; and when collected are placed to the credit of the special fund provided by section 5 of the act of February 1, 1905.

The CHAIRMAN. Do you want us to understand that these various pieces of commercial paper, whether money orders, postal orders, or drafts, are the only way in which these funds reach you?

Mr. ADAMS. The only way, with the exception of occasional remittances of currency, which are, however, contrary to the regulations. The people who make these payments are asked to send their remittances in the shape of postal or express money orders or national-bank drafts on New York, payable to the order of the fiscal agent, who indorses them payable to the Treasurer of the United States for collection.

The CHAIRMAN. Then all of those money orders and drafts come payable to your order?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. And you say that at times during the season you receive as much as \$30,000 a day?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. How much currency do you receive during a day?

Mr. ADAMS. The receipts in currency will not average \$10 a day.

The CHAIRMAN. Do you deposit every morning the sum received the preceding day?

Mr. ADAMS. Yes, sir; possibly once or twice during the grazing season we are unable to clean up in the morning all the receipts of the day before, simply because the items are so numerous, being principally in the shape of postal money orders, some of them for small amounts.

(Witness: Adams.)

The CHAIRMAN. So that if you pursue this course of depositing every morning the sums received the preceding day, you never have in your hands at any one time the amount of your bond?

Mr. ADAMS. No, sir.

The CHAIRMAN. Who fixes the amount of the bond?

Mr. ADAMS. The Secretary of Agriculture.

The CHAIRMAN. Does anyone supervise your office—the manner in which you discharge your duties?

Mr. ADAMS. My records are examined once a month by the disbursing officer of the Department of Agriculture, Mr. Zappone. The records are also checked daily by the sections or offices in the Forest Service having supervision over the transactions on account of which the payments are made.

The CHAIRMAN. Do you mean by that, men who have charge of the timber proposition? Do they check that up?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. Do they check them up further than to show the receipts in your hands? Do they follow them into the Treasury?

Mr. ADAMS. They do in this way: Immediately upon receiving a remittance I issue a certificate of deposit, which is made out in duplicate. The original is sent to the depositor through the supervisor. The duplicate is sent to the office that I have just referred to as having supervision over the line of work from which that particular deposit has come. Upon receipt of my duplicate certificate of deposit the section concerned makes a record of the payment, and if the payment is found to be correct certifies upon the back of the certificate, in a space provided for that purpose, the correctness of the payment and that it has been recorded. The certificate is then referred to the Forester. At the end of each quarter I present an abstract of my receipts to the Forester, who causes this abstract to be checked by these duplicate certificates of deposit, and when the correctness of the abstract has been verified in that manner the abstract, with the duplicate certificates of deposit, are sent to the Auditor for the State and other Departments. By this method the officers having supervision over the different lines of work certify that the amounts received are correct and all that is due upon that transaction—in other words, all that the fiscal agent has received—and the Forester certifies the total receipts as being correct to the Auditor, who ascertains by consulting the records of the Treasurer that the amount called for by that abstract has been deposited to the credit of the proper appropriation.

The CHAIRMAN. That is at the end of the quarter, however.

Mr. ADAMS. Yes, sir.

The CHAIRMAN. How about day by day?

Mr. ADAMS. Mr. Zappone makes an inspection, as I have said, each month, and a part of his inspection consists in comparing the total amounts recorded as received by me with the certificates of deposit which I have received from the Treasurer, to determine the fact that the amounts received by me have been deposited with the Treasurer.

The CHAIRMAN. I suppose you accumulate several days' receipts without deposit in the Treasury. Is there any way of checking that up, any system that you have?

Mr. ADAMS. That fact would be, of course, readily ascertained by Mr. Zappone.

The CHAIRMAN. How would he ascertain it from day to day?

Mr. ADAMS. Mr. Zappone's inspection is not on any fixed day.

The CHAIRMAN. You mean it is irregular in point of time?

Mr. ADAMS. Yes; and Mr. Zappone, should that state of affairs exist, would be just as apt as not to come in and find it existing, and, in the second place, the record would inevitably show the date of receipt, and by comparison the date of deposit with the Treasurer.

The CHAIRMAN. Suppose you accumulate a week's receipts without making any deposit. In what way could that matter be ascertained or disclosed?

Mr. ADAMS. By his comparing the date of the receipts and date of certificates of deposit from the Treasurer.

The CHAIRMAN. Suppose you had \$30,000 a day for six days, which would be \$180,000, and that you had made no deposit. Is there any way provided by which the fact would be ascertained except as examinations might happen to be made?

Mr. ADAMS. No, sir.

The CHAIRMAN. So that there is that possibility of the accumulation in the hands of the fiscal agent of the receipts for a number of days?

Mr. ADAMS. Yes, sir. Perhaps I have overlooked one possible check on that. I stated, I believe, a little while ago, that at the same time the forest officer furnishes a form letter of transmittal to a depositor he sends a duplicate to the Forester. The duplicate is referred to the office having supervision over the line of work represented, and it serves as a notice to them that a certain payment is likely to be made within a short time. The officers concerned, having received an accumulation of those notices and not having received the fiscal agent's duplicate certificate of deposit, would be very apt to go to his office to know what had become of the remittances.

The CHAIRMAN. Those certificates of deposit are issued by you to the Treasury Department?

Mr. ADAMS. No, sir; the certificates of deposit I have referred to are those issued by me to the persons making the payments.

The CHAIRMAN. After they have received the notices from the Treasury Department?

Mr. ADAMS. No, sir. The Treasurer of the United States is not made acquainted at the time of the deposit with the individual sources of the receipts.

The CHAIRMAN. He gives no notice to the people who have knowledge of the source from which it is received either?

Mr. ADAMS. No, sir. Provision for ascertaining that the deposits are correct is made by having the abstract certified by these persons who have knowledge of the remittances sent to the Auditor for the State and other Departments, who is in a position to compare that record with the record of the Treasurer's office. In other words, what you suggest is a matter of auditing, which the Auditor, and not the Treasurer, performs.

The CHAIRMAN. What I wanted to get clearly fixed in my mind was whether, under the system that you have, funds for several days

(Witness: Adams.)

could be accumulated in the hands of the fiscal agent without that fact being disclosed to anyone else connected with the Service?

Mr. ADAMS. I think it could be done, but it could not be done very often without the fact becoming known to several of the persons who are checking.

The CHAIRMAN. That could be taken care of by providing by regulation that all of these money orders, post-office orders, and drafts be made payable to the proper Treasury officer.

Mr. ADAMS. That suggestion was made to the Treasurer of the United States, and the point was raised that if that was done the bond of the fiscal agent would become inoperative.

The CHAIRMAN. Not inoperative; it might become unnecessary.

Mr. ADAMS. No; not unnecessary.

The CHAIRMAN. That is, he would not be liable under his bond for the regular transmission?

Mr. ADAMS. I do not recall distinctly the particular objection raised, but I know that that suggestion was made to the Treasurer of the United States, and it was rejected. They said, "The idea is to appoint a man who is to all intents and purposes an agent of the Treasury to look after these details and bond him to secure the Government against loss through misappropriation of funds. If we eliminate him, it brings this work into the Office of the Treasurer of the United States, and the Treasurer of the United States is not equipped for handling it; he hasn't the clerical force, because it involves a mass of detailed record keeping that he is not prepared to handle;" and it was for that reason that this fiscal agent, who may be considered as a Treasury agent, was provided.

Mr. SAMUEL. Could a dishonest fiscal agent accumulate four or five days' receipts and abscond?

Mr. ADAMS. A dishonest fiscal agent would have very much more chance of negotiating one day's receipts than five or six. I do not believe for one moment that any fiscal agent could negotiate all the commercial paper that would be involved in five or six days' receipts and get away with it.

Mr. SAMUEL. What would prevent it?

Mr. ADAMS. The attempt to negotiate it would excite suspicion immediately in the minds of anybody he approached with a view of having it cashed. I know that any bank would immediately send out an inquiry if it were asked to cash any large amount of paper made payable to a Government fiscal officer.

Mr. SAMUEL. Is he designated as a Government official in the paper?

Mr. ADAMS. Yes; in all of this paper.

The CHAIRMAN. Officially?

Mr. ADAMS. Under the regulations it is required, so far as it is possible to have citizens comply with Government regulations of that kind, to make the remittances payable to the special fiscal agent in his official capacity.

The CHAIRMAN. How do those drafts come?

Mr. ADAMS. Payable to the order of "James B. Adams, special fiscal agent."

The CHAIRMAN. So that the identity of the draft is protected by that receipt?

(Witness: Adams.)

Mr. ADAMS. Yes, sir.

The CHAIRMAN. What percentage of your receipts comes in cash, so far as it does come? Of course it comes in violation of the regulations, but what percentage actually does come in cash?

Mr. ADAMS. Less than one-half of 1 per cent.

The CHAIRMAN. Do you have a safe in your office for the care of these securities while they are in your hands?

Mr. ADAMS. Yes, sir; the office is fully equipped to protect this paper.

The CHAIRMAN. Do you have time locks?

Mr. ADAMS. No, sir.

The CHAIRMAN. Combination locks?

Mr. ADAMS. Combination locks with a night and day watchman.

The CHAIRMAN. What sort of a bond do you furnish?

Mr. ADAMS. A surety company's bond; a corporation bond.

The CHAIRMAN. One company?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. Do you have to pay the expense of that bond yourself?

Mr. ADAMS. Yes, sir; I do.

The CHAIRMAN. It is supposed to be estimated in your salary, but whether it is, as a matter of fact, I suppose you do not know?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. In what manner and for what purpose is this fund disbursed?

Mr. ADAMS. After the money has been deposited to the credit of this special fund created under the act of February 1, 1905, it is made available for disbursement through a requisition by the Secretary of Agriculture on the Secretary of the Treasury asking that a certain amount be placed to the credit of the fiscal agent as a disbursing officer, the money thus placed to his credit being used to pay vouchers when properly certified covering expenses for the administration, protection, and extension of the forest reserves.

The CHAIRMAN. That is carried in the Treasury as a special fund. Under what name?

Mr. ADAMS. "Administration, etc., Forest Reserve."

The CHAIRMAN. Now, you say that a special disbursing officer checks that out?

Mr. ADAMS. No, sir; the fiscal agent.

The CHAIRMAN. You check it out?

Mr. ADAMS. It is not checked out, sir. It is first drawn out on a requisition by the Secretary of Agriculture on the Secretary of the Treasury. This requisition asks that a specified amount of money be withdrawn from this special fund and placed to the credit of the fiscal agent with the Treasurer of the United States at Washington or the assistant treasurer of the United States at New York, as the case may be, and the money is then checked out by the fiscal agent on drafts drawn upon the Treasurer or the Assistant Treasurer.

The CHAIRMAN. Based upon these vouchers?

Mr. ADAMS. Yes, sir; in payment of properly certified vouchers presented to the fiscal agent.

The CHAIRMAN. What sums are covered by these requisitions; in what amounts are the requisitions made?

(Witness: Adams.)

Mr. ADAMS. In amounts from \$10,000 to \$50,000, according to the need for replenishing the funds available in the hands of the fiscal agent for disbursements.

The CHAIRMAN. So that at times you have on deposit, subject to your check, \$50,000?

Mr. ADAMS. Yes, sir; or more. Under orders of the Secretary of the Treasury disbursing officers are allowed to draw certain amounts in excess of their bond, and this rule has been applied to me, or, to put it differently, this privilege has been extended to me, to the sum of \$80,000.

The CHAIRMAN. So that that is a regulation which obtains in the Treasury Department?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. And in accordance with that regulation or practice of the Treasury Department—

Mr. ADAMS. Yes, sir.

The CHAIRMAN. You can have on deposit subject to your check as much as \$80,000?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. And that regulation, as you understand it, is on all fours with the regulation that is in force in the Treasury Department?

Mr. ADAMS. Yes, sir; it is.

The CHAIRMAN. In connection with other disbursing officers in regard to similar funds?

Mr. ADAMS. Yes, sir; in connection with other disbursing officers, all disbursing officers.

The CHAIRMAN. At what period of the year do you make your largest collections?

Mr. ADAMS. The largest collections are made during the last quarter, the fourth quarter, of the fiscal year.

The CHAIRMAN. The fourth quarter of the fiscal year?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. That would be April, May, and June?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. And at what time do you have on hand the largest sum subject to check?

Mr. ADAMS. There is no particular time during the year when the amount on hand is larger than at other times.

The CHAIRMAN. Do you have at times on hand, subject to check, \$80,000?

Mr. ADAMS. Yes, sir. It is well to understand that we are not disbursing \$80,000 a year, but we are disbursing considerably over a million a year.

The CHAIRMAN. Yes; I understand.

Mr. ADAMS. And the idea is that as fast as my balance is reduced by payments, it is replenished through requisitions. That makes a fluctuation in the balance of from, say, \$30,000 to \$70,000.

The CHAIRMAN. That is, your balance on hand in bank subject to check fluctuates from \$30,000 to \$70,000?

Mr. ADAMS. Yes, sir. The payments sometimes, especially during the first part of the month, when the salaries of field men are paid by draft, will run up to perhaps \$15,000 a day or more for a few days.

That may continue for several days, and it may be then necessary to rush a requisition through in order to replenish the balance.

The CHAIRMAN. To keep the balance up?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. Now, these sums are disbursed, you say, in the Forest Service. What does that mean? Are they disbursed in the payment of the men engaged in the service of your Bureau?

Mr. ADAMS. Yes, sir; in the payment of the salaries, and expenses, expenses covering both travel and equipment.

The CHAIRMAN. Do you use it for the same purposes, only cumulative in character, that the appropriations made by Congress are used for?

Mr. ADAMS. Yes, sir; they are used for identically the same purposes and in precisely the same manner.

The CHAIRMAN. So that it is the same thing as though Congress actually appropriated \$500,000 or \$1,000,000 or \$1,200,000 more?

Mr. ADAMS. It is precisely the same thing, sir, because as a matter of fact Congress has appropriated it.

The CHAIRMAN. That is, it has a law by which it continually appropriates the sums received from that source?

Mr. ADAMS. Yes.

The CHAIRMAN. And if these sums were not received from that source, unless the scope of the Department was cut down, it would simply mean that much more appropriation?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. So that there is no differentiation between the use of the sums received and the sums appropriated by Congress?

Mr. ADAMS. They are identical in every respect.

The CHAIRMAN. There is a distinction in the matter of disbursements, is there not?

Mr. ADAMS. No, sir; not a particle.

The CHAIRMAN. Do you disburse the sums received from the appropriations?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. And are the sums received from appropriations for your Bureau subject to requisition, and your check, just as these funds are?

Mr. ADAMS. Yes, sir; they are obtained and disbursed in precisely the same way. As a matter of bookkeeping, the record of their receipt and disbursement is kept separate, but as a matter of actual method, there is not a particle of difference between the methods of handling these two funds.

The CHAIRMAN. What is the sum that is appropriated for the present year?

Mr. ADAMS. One million dollars.

The CHAIRMAN. And you disburse and administer the sums received from these various sources and deposit in the Treasury in the same manner in which you have described, in exactly the same way, under the same circumstances that you disburse the appropriation of a million dollars?

Mr. ADAMS. Yes, sir; all disbursements being made, necessarily, in strict accordance with the fiscal regulations of the Department of

(Witnesses: Adams, Zappone.)

Agriculture, and when the disbursement relates to salaries, in accordance with the rules and regulations of the civil service.

The CHAIRMAN. Do those same regulations apply to all the bureaus of the Department of Agriculture?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. And are disbursements made by them made in substantially the same manner?

Mr. ADAMS. Yes, sir; necessarily disbursements in the Forest Service are made in exactly the same manner as are the disbursements in the other bureaus of the Department, because they are all governed by the same fiscal regulations.

The CHAIRMAN. You have one general regulation?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. That applies to all bureaus?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. Do you mean that each bureau has its fiscal agent or disbursing officer?

Mr. ADAMS. No; Mr. Zappone disburses for all the other bureaus. That is right, is it not?

Mr. ZAPPONE. I disburse for all bureaus, offices, and divisions of the Department of Agriculture except the Forest Service.

The CHAIRMAN. Does the disbursing agent or fiscal agent in the Forest Service discharge substantially the same duties for that Service that you discharge for the other branches of the Department of Agriculture?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. The same kind of work, under the same circumstances, with the same requirements and requisitions?

Mr. ZAPPONE. Similar books, with the same requirements and requisitions; the requisitions to the Treasury for advances of funds are identically the same in the Forest Service.

The CHAIRMAN. Do you give a bond?

Mr. ZAPPONE. I do; I am under a \$50,000 bond.

The CHAIRMAN. How much do you disburse, in the aggregate, for the other bureaus of the Department of Agriculture?

Mr. ZAPPONE. About nine and one-half millions of dollars per annum at the present time.

The CHAIRMAN. For how much, as a rule, do you have requisitions? How much do you have—

Mr. ZAPPONE. Subject to check?

The CHAIRMAN. Yes; subject to check.

Mr. ZAPPONE. I have balances at the subtreasuries, or depositories, as they are designated, aggregating at times \$300,000 or more. The custom in regard to that, Mr. Chairman, a custom common to all disbursing clerks of the Government, is this: Upon recommendation by the head of a department, his disbursing officer is allowed to draw more than the amount of his bond in order properly to conduct the business of the Department, the Secretary of the Treasury granting that concession. Why? Because on each requisition for the advance of money, made by the head of a department for his disbursing officer—all such requisitions are signed by the head of the department—he states that there are in his office paid vouchers amounting to so

much, which vouchers will be forwarded to the United States Treasury at the close of the current quarter. This enables the Treasury Department to tell just what business has been transacted up to that date, and whether or not the additional amount requested is needed.

You spoke of the fund "Administration, etc., Forest Reserve," and asked whether or not it was similar to appropriations made by Congress. In a general way it is. The money is first deposited in the Treasury as miscellaneous receipts, then, under the law that the fiscal agent of the Forest Service has referred to, dated February 1, 1905, with later amendments, that money is transferred in the Treasury to a special fund called "Administration, etc., Forest Reserve." But the special fiscal agent of the Forest Service can not check against it until he is advised by the Treasury Department that it has been placed to this fund, and even then not until the head of his Department has made a requisition on the Treasury in the usual manner. The Treasury advice comes in the form of an appropriation warrant, designating the amount set aside on their books. These warrants are not issued daily, but usually at the end of each month, and the fiscal agent must await the receipt of the warrant before a requisition can be drawn and checks issued.

The CHAIRMAN. As I understand it, he must have a requisition upon the Treasury Department before he can draw a check?

Mr. ZAPPONE. That is correct. Neither a disbursing officer nor a special fiscal agent can draw checks until the head of the Department to which he belongs has made a requisition asking for an advance of money to be placed to his credit at some one of the different depositories.

The CHAIRMAN. The head of the Department does that by a formal requisition?

Mr. ZAPPONE. The head of the Department does that by a formal requisition.

Returning to the appropriation, "Administration, etc., Forest Reserves," and particularly to the point that the Secretary of the Treasury must advise the Secretary of Agriculture that a certain amount had been placed to this appropriation subject to his requisition: Each year, when the estimates of appropriations are submitted to Congress, we report the amount of the revenues received by the Forest Service, and it is printed in the back part of the Book of Estimates, just as the revenues of the Customs Service and the Reclamation Service are reported and published. These are not estimates for money to be appropriated by Congress. They show Congress what revenues the Government has received during the past year and will receive during the next year, so that Congress may know what amount of money—

The CHAIRMAN. It will be necessary to appropriate?

Mr. ZAPPONE. Yes, sir; the amount of money it will be necessary to appropriate to cover the balances for the coming year. If you will examine the Book of Estimates for the fiscal year 1908, now being considered by Congress, you will find, under the head of "Permanent appropriations," in the back part of the estimates, the amount of the revenues received by the Forest Service, under the caption "Administration, etc., Forest Reserves." My recollection is that it is about \$767,000. You will also see what was received during

the preceding year and an estimate of the amount that they expect to receive during the next fiscal year. So that that information is always in the hands of Congress in the Book of Estimates. And you might say, to all intents and purposes, that fund is just as much an appropriation as any other appropriation made by Congress.

The CHAIRMAN. It is appropriated by Congress; it is a permanent appropriation?

Mr. ZAPPONE. Congress does not appropriate it every year. It becomes an appropriation by a general statute, which specifies how the Forest Service can get it out of the Treasury.

The CHAIRMAN. It is a permanent annual appropriation?

Mr. ZAPPONE. Yes, sir; it is so styled on the books of the Treasury Department and in the Book of Estimates.

The CHAIRMAN. How does the bond you give as a disbursing officer, having subject to your check, say, \$300,000 from time to time, compare in size with the bond given by disbursing officers in the other Departments of the Government, or do you know?

Mr. ZAPPONE. They are all of equal amount, so far as I know. The Treasury Department has fixed upon \$50,000 as the maximum bond to be required of a disbursing officer.

The CHAIRMAN. Is there a disbursing officer for each of the other departments or are there several disbursing officers? For instance, is there a disbursing officer for the Navy Department, a disbursing officer for the State Department, a disbursing officer for the War Department, and a disbursing officer for the Department of Commerce and Labor, and so on, or do they each have several disbursing officers?

Mr. ZAPPONE. There is usually but one disbursing officer for a Department, but there may be more than one in Departments having outlying bureaus, for instance, like the Bureau of Forestry of the Department of Agriculture. That Bureau is removed from the main Department some distance, as you are aware, which is one of the reasons why it has a special fiscal agent.

The CHAIRMAN. Do you know about what sum, as a rule, is carried on deposit subject to the check of the disbursing officers in the other Departments?

Mr. ZAPPONE. I do not; the sum varies with the size of the Department, and is always in excess of the amount of the bond.

The CHAIRMAN. The disbursing officers for the other Departments disburse very much larger sums of money. For instance, the Navy Department disburses a hundred millions of money a year.

Mr. ZAPPONE. Some of them disburse very much larger sums, particularly the Navy Department and the War Department.

The CHAIRMAN. How do you know, as a matter of fact, what sums they have on hand subject to check?

Mr. ZAPPONE. I do not know. I wish to add one thing, Mr. Chairman. You have spoken of \$300,000 as being the maximum amount on deposit to my credit. I did not say that it was \$300,000. I said that I might have that much on deposit at one time. As a matter of fact, I can draw \$550,000 under my bond, this being absolutely necessary at times to conduct properly the financial business of the Department.

The CHAIRMAN. So that in the course of your business you may have on deposit subject to check as much as \$550,000 at one time?

Mr. ZAPPONE. I may, but that is unusual.

The CHAIRMAN. Is \$300,000 a fair average of what you have?

Mr. ZAPPONE. It will average about \$300,000. During the first ten days of each month the amount that I have on deposit is largest. During that period I pay the salaries of nearly 7,000 employees—those in Washington in cash and those outside of Washington by check. Naturally I must have a big floating balance all the time.

The CHAIRMAN. Then in the discharge of your duties you have to have on hand quite large sums of cash at some times?

Mr. ZAPPONE. I have on hand in cash on the 16th and 1st of each month amounts ranging from \$70,000 to \$75,000.

The CHAIRMAN. In cash?

Mr. ZAPPONE. In cash. With the exception of a few hundred dollars, however, it is disbursed the same day; in fact, I can safely say that after the employees in Washington are paid my cash balance will always be less than \$300. There are a great many per diem employees, and we have to estimate the amount that will be necessary for their salaries. In other words, we do not know the exact amount required for them until after the close of the last day for which they are to be paid.

The CHAIRMAN. And you must have a very small margin to go and come on?

Mr. ZAPPONE. I have to draw a slightly larger amount than I need; but the regulations of the Treasury Department provide that such surplus cash can be kept on hand for only four days. On the 5th and on the 20th of each month, four days after pay day in each case, I return to the Treasury every cent of cash in my safe.

We balance our books every night. Those balances are subject to inspection, and, if you so desire, I can bring to you for examination an entire month's record of our daily balances.

In addition to that, Mr. Chairman, at the end of each quarter I render to the Treasury Department one combined account current—the account current that Mr. Jacobs, of the Auditor's office, showed to you personally, and explained. At the foot of that form is an analytical statement of the money on deposit to my credit in the several depositories at the end of the quarter, in my particular case these depositories being New York, Chicago, and Washington. The analysis also shows the amount of money in cash in my office safe. Furthermore, the amount of outstanding checks, together with all of the other items entered on the combined account current and covering actual disbursements made by me, must balance with the advances of money made by the Treasury. With my combined account current before them, the Treasury officials know the exact status of the business of my office at the close of each quarter. Have I made myself clear?

The CHAIRMAN. Yes; that covers that. I want to ask Mr. Adams a question.

Mr. Adams, you heard the statement and explanation which have just been made by Mr. Zappone as to the manner in which the business of his office is done with reference to his cash balances and ac-

(Witnesses: Adams, Zappone.)

counts current. I would like to inquire what the practice in your office is in those particulars?

Mr. ADAMS. The practice in the office of the special fiscal agent is identical with that just described by Mr. Zappone with reference to daily settlement and daily balance sheet, quarterly accounts current, and the settlement of accounts by the auditor.

The CHAIRMAN. Mr. Zappone, under your explanation of the business of your office, your responsibilities, and the size of that fund, it would rather seem that the bond required of the special fiscal agent of the Forest Service is, if anything, rather large. I would like to inquire how his bond happens to be as large as yours, although he does not have the control of so large a fund?

Mr. ZAPPONE. When the special fiscal agent was first appointed the amount of his bond was fixed at \$35,000. That was done at the suggestion of the Forester.

The CHAIRMAN. Who was that? Mr. Pinchot?

Mr. ZAPPONE. Mr. Pinchot, the Forester. As the receipts from the sale of timber and from grazing privileges grew—in other words, with the increase of the fund “Administration, etc., Forest Reserves”—Mr. Pinchot, the Forester, decided that it would be better to increase the amount of the bond of the special fiscal agent, feeling that the increased revenues that came in might at some time give rise to criticism if the bond of the special fiscal agent was not large. The peculiar character of the money that comes into the hands of the special fiscal agent also influenced the Forester, I think. As has been explained to you, it is different from that which comes into the hands of any other disbursing clerk of the Government service, inasmuch as it is very large and comes in from many sources over the country, making it possible (but highly improbable in the case of the present incumbent) for defalcations to occur; and with a view of fully protecting the interests of the Government, it is my recollection that Mr. Pinchot felt that the amount of the bond in his case should be increased and put on a par with the bonds of other disbursing officers of the Government.

The CHAIRMAN. Then, if there is any apparent disproportion, the responsibility for it really rests upon Mr. Pinchot?

Mr. ZAPPONE. Entirely so. He made the bond that amount because he felt that it would be a proper thing to do. He felt, in his wisdom, it was best to do it, in view of the peculiar character of the receipts and the manner in which they reached his office.

Mr. SAMUEL. That was a recommendation of Mr. Pinchot to the Secretary, was it not?

Mr. ZAPPONE. That was a recommendation of Mr. Pinchot to the Secretary, and, I might say, was based to some extent upon the many inspections which I had made personally of that office.

Mr. SAMUEL. He would not have authority to increase the bond himself, would he, without permission of the Secretary?

Mr. ZAPPONE. He would not have authority to increase the bond without permission of the Secretary. He would recommend to the Secretary, and his recommendation would be approved.

Mr. ADAMS. One point in the methods adopted by the Forest Service for the collection of those moneys should not be overlooked

in this discussion, and that is that the forest officers in the field who have charge of the timber or of the grazing or the privileges from which the revenue is to be derived and who negotiate the transaction, are positively prohibited by the Secretary's regulations from receiving the money. The regulations provide that they must all be paid to a particular fiscal agent in Washington, who acknowledges their receipt both to the depositor, to the supervising officers in Washington, and to the forest officer in the field, who is in charge of the administration of the reserve. The supervising officer in the field who has negotiated the transaction also makes a full report of the transaction to the Forester and furnishes him a notice that certain moneys are liable to be deposited on account of these transactions, in that way furnishing the Forester with the data upon which to check the fiscal agent. The situation resolves itself into this, one set of men are prosecuting the business on the ground, one man is receiving the money, and another set of men who have neither immediate control of the transaction nor of the money are checking up both the administrative officer who is carrying on the transaction and the fiscal agent who is receiving the money.

The CHAIRMAN. Are those regulations known to the public with whom the officers in the field deal?

Mr. ADAMS. These regulations are widely published through the medium of "The Use Book," which contains the Secretary's regulations governing the forest reserves, and they appear on every printed form used by the Forest Service in transactions involving the payment of money.

The CHAIRMAN. So that the parties pay the money, and when they receive any acknowledgment of it—that is, officially receive—on that acknowledgment there is notice that their payments should be made in the way provided by the regulations?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. So that everybody dealing with the Government is advised at the time he deals that in order to make a valid payment to the Government it must be made through one of the mediums of which you have spoken?

Mr. ADAMS. That is it exactly.

The CHAIRMAN. Then the examiner in charge on the spot gets a receipt in the name of the Department, does he or does he not?

Mr. ADAMS. For the money?

The CHAIRMAN. Yes, sir.

Mr. ADAMS. No, sir; not for the money.

The CHAIRMAN. When this man pays the money to the Department, to whom does he pay it?

Mr. ADAMS. To the fiscal agent at Washington. The depositor receives his receipt from the fiscal agent for the money deposited. The receipt, or certificate of deposit as it is called, is mailed to the depositor through the supervisor.

The CHAIRMAN. So that until the man who is dealing with the Government gets an acknowledgment from the fiscal agent he has no formal receipt from the Department?

Mr. ADAMS. No, sir; he has no receipt.

The CHAIRMAN. A receipt acquitting him from any claims the Department may have against him?

(Witnesses: Adams, Pinchot.)

Mr. ADAMS. He has no receipt whatever. The purpose of sending the certificate of deposit through the forest officer is to furnish the officer with the positive assurance that the payment has been made; he can then proceed with the transaction with exactly the same assurance that he would have if the money had been paid to him.

The CHAIRMAN. Then he is the Government's debtor?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. Whenever you have used the term "depositor" you have referred in your mind to the Government's debtor?

Mr. ADAMS. Yes, sir.

The CHAIRMAN. That is, the man who pays for the timber and the man who owes the Government for services rendered or privileges granted?

Mr. ADAMS. Yes, sir. We have four parties to every one of these transactions—the user of the reserve, the supervisor or forest field officer immediately in charge of the transaction, the fiscal agent in Washington, who receives the money and does nothing else and has no other connection with the transaction, and the Forester and his assistants, who manage and check up both ends of the transaction.

The CHAIRMAN (to Mr. PINCHOT). While the collection and disbursements of the funds issuing from the Forest Service seem to be surrounded by every necessary and conservative restriction and regulation, in our examination of Mr. Adams, your special fiscal agent, he explained in detail the circumstances under which he deposited his collections with the Treasury Department, and I would like to inquire whether or not, in your judgment, it would be feasible to arrange with the Treasury Department to certify at the close of each day to the Department of Agriculture or to some person who would have knowledge of the funds in the hands of the special fiscal agent the amount he deposits from day to day?

Mr. PINCHOT. I think that suggestion is an admirable one, and, with your approval, I will take steps to have it carried out.

The CHAIRMAN. I would be very glad to have you do so; although it might not appear to be necessary, it would eliminate any possible opportunity for criticism.

Mr. PINCHOT. Mr. Adams furnishes to the Treasury Department duplicate copies of what he transmits daily, and one of those copies is returned to him certified in the form of a receipt. If Mr. Adams will furnish to the Treasury Department three copies, one of those copies, certified as a receipt, could be forwarded to the Secretary of Agriculture for the use of Mr. Zappone or me, who could then check from day to day the Treasury's statement of receipts with what Mr. Adams's books showed he had on hand.

The CHAIRMAN. As illustrating the business of the fiscal agent and the collections which he receives under those circumstances, could you place in the record as a part of your testimony a schedule showing the amounts received by him since the transfer of the Service from the Interior Department up to date?

Mr. PINCHOT. I will do so very gladly.

FOREST SERVICE.
(Witness: Pinchot.)

Total amounts received and deposited in the United States Treasury from different forest reserves for timber sales, grazing, and special privileges, from February 1, 1905, to February 16, 1907, by fiscal years.

Reserve.	Source.	1905.	1906.	1907.
Alexander Archipelago.....	Timber sales.....		\$2,486.19	\$940.64
	Special privileges.....		343.88	295.00
	Total.....		2,830.07	1,235.64
Aquarius.....	Timber sales.....	\$26.00	106.00	42.50
	Grazing.....		5,538.10	36.20
	Special privileges.....		2.50	2.50
	Total.....	26.00	5,646.60	81.20
Ashland.....	Timber sales.....	31.00	91.13	
Baker City.....	Do.....	56.00	189.55	
Battlement Mesa.....	Do.....	9.00	10.12	542.31
	Grazing.....		6,555.75	20.40
	Special privileges.....		31.50	119.20
	Total.....	9.00	6,597.17	681.91
Beaver.....	Timber sales.....		142.00	981.15
	Grazing.....		3,552.63	347.63
	Total.....		3,694.63	1,327.78
Big Belt.....	Timber sales.....		630.36	2,401.92
	Grazing.....		6,722.94	2,005.00
	Special privileges.....			144.00
	Total.....		7,353.30	5,053.92
Big Horn.....	Timber sales.....	875.00	23,315.38	27,493.50
	Grazing.....		7,661.69	313.77
	Special privileges.....		10.00	32.40
	Total.....	875.00	30,987.07	27,839.67
Bitter Root, Idaho.....	Timber sales.....	671.50	749.50	906.00
	Grazing.....		858.67	284.50
	Special privileges.....		107.00	12.00
	Total.....	671.50	1,715.17	1,202.50
Bitter Root, Mont.....	Timber sales.....	250.00	597.34	1,231.47
	Grazing.....		826.51	47.50
	Special privileges.....		12.00	
	Total.....	250.00	1,435.85	1,278.97
Black Hills.....	Timber sales.....	12,594.35	35,367.10	11,937.45
	Grazing.....		1,846.45	144.80
	Special privileges.....		173.60	29.00
	Total.....	12,594.35	37,427.15	12,111.25
Black Mesa.....	Timber sales.....	30.00	1,525.00	563.20
	Grazing.....		14,554.99	203.09
	Special privileges.....		178.30	301.05
	Total.....	30.00	16,258.29	1,067.34
Cascade, North.....	Timber sales.....	132.60	343.21	829.24
	Grazing.....		6,993.72	266.24
	Special privileges.....		7.50	57.50
	Total.....	132.60	7,344.43	1,152.98
Cascade, South.....	Timber sales.....	255.25	442.77	440.50
	Grazing.....		6,028.62	238.87
	Special privileges.....		7.00	99.00
	Total.....	255.25	6,476.39	778.37
Cave Hills.....	Grazing.....			101.86
	Special privileges.....			10.00
	Total.....			111.86

(Witness: Pinchot.)

Total amounts received and deposited in the United States Treasury from different forest reserves for timber sales, etc.—Continued.

Reserve.	Source.	1905.	1906.	1907.
Chiricabua	Timber sales.....	\$2,019.34	\$4,080.38	\$1,433.31
	Grazing		231.70	41.70
	Special privileges		29.80	28.00
	Total	2,019.34	4,291.88	1,503.01
Blue Mountains, East.....	Timber sales.....			4,402.75
	Grazing		16,926.30	2,838.00
	Special privileges			400.95
	Total		16,926.30	7,641.70
Blue Mountains, West.....	Timber sales.....			187.50
	Grazing		14,838.30	8,587.78
	Special privileges			20.00
	Total		14,838.30	8,795.28
Cassia, Idaho	Timber sales.....		97.82	5.00
	Grazing		4,232.30	
	Special privileges			6.40
	Total		4,390.12	11.40
Chesnimnus	Timber sales.....		15.00	776.65
	Grazing		4,870.48	468.25
	Special privileges			5.00
	Total		4,885.48	1,249.91
Cochetopa	Timber sales.....		3,015.17	4,294.47
	Grazing		6,313.40	129.25
	Special privileges		100.00	25.00
	Total		9,428.57	4,448.72
Diamond Mountains.....	Timber sales.....			228.23
	Grazing		6,108.87	82.50
	Special privileges		10.00	10.00
	Total		6,118.87	320.73
Dismal River	Grazing		696.35	84.50
Dixie	Timber sales.....		60.25	153.25
	Grazing		936.15	228.10
	Special privileges		6.00	4.50
	Total		1,002.40	355.85
Elkhorn	Timber sales.....		112.50	1,274.58
	Grazing		1,256.86	159.40
	Total		1,369.36	1,263.98
Fish Lake.....	Timber sales.....		2.00	318.50
	Grazing		3,103.80	120.88
	Special privileges		8.00	8.00
	Total		3,113.80	447.38
Gallatin.....	Timber sales.....		1,308.67	7,547.33
	Grazing		2,427.30	358.23
	Special privileges.....			35.60
	Total		3,735.97	7,941.16
Garden City.....	Grazing		1,020.08	132.63
Gila.....	Timber sales.....	2,247.51	7,125.74	9,395.36
	Grazing		17,831.23	217.76
	Special privileges.....		27.80	128.80
	Total	2,247.51	24,984.77	9,741.92
Grand Canyon, North.....	Timber sales.....		159.00	130.00
	Grazing		2,375.44	400.93
	Special privileges		10.00	
	Total		2,544.44	530.93

FOREST SERVICE.
(Witness: Pinchot.)

Total amounts received and deposited in the United States Treasury from different forest reserves for timber sales, etc.—Continued.

Reserve.	Source.	1905.	1906.	1907.
Grand Canyon, South.....	Timber sales.....	\$75.00	\$80.00	\$62.50
	Grazing.....		807.63	2,099.95
	Special privileges.....		121.50	521.00
	Total.....	75.00	1,009.13	2,683.45
Grantsville.....	Timber sales.....	40.85	89.67	
	Grazing.....		457.99	
	Total.....	40.85	497.66	
Gunnison.....	Timber sales.....		1,279.84	3,026.87
	Grazing.....		3,538.79	9.30
	Special privileges.....		33.60	68.75
	Total.....		4,852.23	3,104.62
Helena.....	Timber sales.....		306.83	12,436.09
	Special privileges.....			165.75
	Total.....		306.83	12,601.84
Hell Gate.....	Timber sales.....		15,982.33	11,517.25
	Grazing.....		4,155.45	155.07
	Special privileges.....		50.20	146.00
	Total.....		20,187.98	11,818.32
Henrys Lake.....	Timber sales.....		7,986.63	8,391.42
	Grazing.....		10,495.60	.60
	Special privileges.....		56.15	25.08
	Total.....		18,538.38	8,417.10
Highwood Mountains.....	Timber sales.....		8.00	
	Grazing.....		1,311.31	5.75
	Total.....		1,319.31	5.75
Holy Cross.....	Timber sales.....		20,406.05	15,246.16
	Grazing.....		5,080.21	97.25
	Special privileges.....		5.00	123.25
	Total.....		25,491.26	15,466.66
Jemez.....	Timber sales.....		430.49	5,616.95
	Grazing.....		14,775.14	1,354.84
	Special privileges.....		5.00	5.00
	Total.....		15,210.63	6,976.79
Klamath.....	Timber sales.....		1,019.25	1,888.03
	Grazing.....		1,297.90	131.17
	Special privileges.....			51.43
	Total.....		2,317.15	2,020.63
Lassen Peak.....	Timber sales.....			207.80
	Grazing.....		4,754.89	
	Special privileges.....		25.00	27.50
	Total.....		4,779.89	235.30
Leadville.....	Timber sales.....		13,238.29	6,207.10
	Grazing.....		4,064.93	40.70
	Special privileges.....		4.00	52.00
	Total.....		17,307.22	6,299.80
Lewis and Clark, North.....	Timber sales.....	991.86	707.33	5,566.16
	Grazing.....		64.84	10.20
	Special privileges.....		53.50	89.75
	Total.....	991.86	825.68	5,666.11
Lewis and Clark, South.....	Timber sales.....	474.70	260.50	12,869.75
	Grazing.....		1,712.49	197.50
	Special privileges.....		69.00	79.75
	Total.....	474.70	2,041.99	13,147.00

Total amounts received and deposited in the United States Treasury from different forest reserves for timber sales, etc.—Continued.

Reserve.	Source.	1905.	1906.	1907.
Lincoln	Timber sales	\$20.00	\$331.83	\$187.58
	Grazing		2,131.50	784.99
	Special privileges	5.00	116.35	81.25
	Total	25.00	2,579.68	1,053.82
Little Belt	Timber sales	459.50	773.35	2,953.56
	Grazing		4,118.09	379.45
	Special privileges		2.00	5.00
	Total	459.50	4,893.44	3,338.01
Logan	Timber sales		66.50	
	Grazing		2,706.56	
	Total		2,773.06	
Madison	Timber sales		989.35	972.43
	Grazing		8,612.54	869.88
	Special privileges		64.38	105.85
	Total		9,666.27	1,448.16
Manti	Timber sales	848.50	2,029.74	3,266.60
	Grazing		19,991.98	147.36
	Special privileges			32.50
	Total	848.50	22,021.72	3,446.46
Maury Mountains	Timber sales		148.58	250.00
	Grazing		213.67	11.88
	Special privileges		10.00	
	Total		372.25	261.88
Medicine Bow	Timber sales	18,039.93	14,806.70	25,313.78
	Grazing		6,075.73	383.40
	Special privileges		61.40	30.00
	Total	18,039.93	20,943.83	25,727.18
Modoc	Grazing		2,744.74	25.00
	Special privileges		200.80	1,108.80
	Total		2,945.54	1,133.80
Montezuma	Timber sales		20.00	601.35
	Grazing		2,818.97	429.90
	Special privileges			65.40
	Total		2,838.97	1,096.65
Mount Grabam	Timber sales	1,434.11	960.00	2,561.92
	Grazing		304.26	59.81
	Total	1,434.11	1,364.26	2,621.73
Mount Rainier	Timber sales	1,868.46	592.44	3,778.32
	Grazing		6,008.95	
	Special privileges		2.00	12.50
	Total	1,868.46	6,603.39	3,790.82
Niobrara	Grazing		1,482.95	52.50
North Platte	Grazing		5,724.25	622.30
	Special privileges			22.40
	Total		5,724.25	644.70
Olympic	Timber sales		1,075.00	370.50
	Grazing		17.00	1.65
	Special privileges		180.00	82.50
	Total		1,272.00	454.65
Park Range	Timber sales		683.92	543.92
	Grazing		2,044.40	154.90
	Special privileges		5.00	352.00
	Total		2,733.32	1,050.82

FOREST SERVICE.
(Witness: Pinchot.)

Total amounts received and deposited in the United States Treasury from different forest reserves for timber sales, etc.—Continued.

Reserve.	Source.	1905.	1906.	1907.
Payette	Timber sales		\$33. 70	\$5. 00
	Grazing		12, 055. 80	54. 00
	Special privileges		31. 00	100. 00
	Total		12, 120. 50	159. 00
Payson	Timber sales	\$3. 00	42. 00	30. 00
	Grazing		2, 954. 32	102. 88
	Total	3. 00	2, 996. 32	132. 88
Pecos River	Timber sales	213. 34	1, 581. 83	975. 30
	Grazing		670. 55	34. 04
	Special privileges		22. 30	
	Total	213. 34	2, 274. 68	1, 009. 34
Pikes Peak	Timber sales	1, 564. 99	9, 129. 76	11, 148. 00
	Grazing		8, 874. 29	498. 87
	Special privileges		200. 43	200. 65
	Total	1, 564. 99	13, 204. 48	11, 847. 52
Pinal Mountains	Timber sales	130. 00	202. 00	245. 10
	Grazing		89. 80	30. 85
	Special privileges			60. 50
	Total	130. 00	291. 80	336. 45
Plumas	Timber sales		3, 174. 09	580. 87
	Grazing		2, 465. 53	15. 26
	Special privileges		13. 00	25. 00
	Total		5, 652. 62	620. 63
Pocatello	Timber sales			155. 14
	Grazing		51. 95	
	Total		51. 95	155. 14
Portales	Grazing		1, 895. 80	142. 80
Prescott	Timber sales	615. 12	2, 132. 66	1, 658. 32
	Grazing		703. 47	174. 09
	Special privileges		23. 00	156. 40
	Total	615. 12	2, 859. 13	1, 988. 81
Priest River	Timber sales	267. 00		69. 12
	Grazing		26. 75	
	Total	267. 00	26. 75	69. 12
Salt Lake	Timber sales	31. 50	843. 99	256. 25
	Grazing		131. 04	. 25
	Special privileges		300. 00	235. 30
	Total	31. 50	775. 03	491. 80
San Bernardino	Timber sales	42. 00	67. 37	1, 731. 25
	Grazing		554. 50	42. 83
	Special privileges		135. 00	418. 00
	Total	42. 00	806. 87	2, 242. 08
San Francisco Mountains	Timber sales	89. 60	25, 311. 27	58, 344. 44
	Grazing		16, 975. 25	554. 78
	Special privileges		283. 80	475. 80
	Total	89. 60	42, 570. 32	59, 375. 02
San Gabriel	Timber sales		308. 00	4. 75
	Grazing		164. 94	46. 35
	Special privileges		540. 00	581. 50
	Total		1, 012. 94	632. 60

FOREST SERVICE.
(Witness: Pinchot.)

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Total amounts received and deposited in the United States Treasury from different forest reserves for timber sales, etc.—Continued.

Reserve.	Source.	1905.	1906.	1907.
San Isabel	Timber sales		\$330.80	\$109.80
	Grazing		987.35	42.90
	Special privileges		6.00	18.50
	Total		1,324.15	171.20
San Jacinto	Timber sales			4.75
	Grazing		300.23	
	Special privileges		29.00	12.00
	Total		329.23	16.75
San Juan	Timber sales		248.00	2,072.22
	Grazing		11,461.29	976.67
	Special privileges			78.20
	Total		11,709.29	3,127.09
Santa Barbara	Timber sales	\$2,550.00	450.00	136.85
	Grazing		3,382.24	54.00
	Special privileges		159.00	229.50
	Total	2,550.00	3,991.24	420.35
Santa Catalina	Timber sales			2.00
	Grazing		90.30	48.13
	Special privileges		5.00	10.00
	Total		95.30	60.13
Santa Rita	Timber sales	158.35	13.00	32.50
	Grazing		446.80	759.76
	Special privileges			31.46
	Total	158.35	459.80	823.72
Sawtooth	Timber sales		1,927.60	17,169.92
	Grazing		16,986.80	100.55
	Special privileges		27.00	70.00
	Total		18,941.40	17,340.47
Sevier	Timber sales		498.97	285.00
	Grazing		10,408.87	1,277.05
	Special privileges			3.00
	Total		10,907.84	1,565.05
Shasta	Timber sales		770.74	2,954.06
	Grazing		2,677.24	250.14
	Special privileges		5.00	23.00
	Total		3,452.98	3,227.20
Sierra, North	Timber sales	3,606.25	7,734.54	14,764.48
	Grazing		7,707.22	238.28
	Special privileges		2,584.49	719.50
	Total	3,606.25	18,026.25	15,722.26
Sierra, South	Timber sales		1,500.00	1,918.60
	Grazing		7,002.99	62.60
	Special privileges		6.00	672.75
	Total		8,508.99	2,653.95
Slim Buttes	Grazing			157.16
	Special privileges			21.00
	Total			178.16
Stanislaus	Timber sales	265.60	200.00	3,966.00
	Grazing		5,352.41	5.20
	Special privileges		426.46	804.20
	Total	265.60	5,978.87	4,775.40

FOREST SERVICE.
(Witness: Pinchot.)

Total amounts received and deposited in the United States Treasury from different forest reserves for timber sales, etc.—Continued.

Reserve.	Source.	1905.	1906.	1907.
Tahoe.....	Timber sales.....			\$4,802.02
	Grazing.....		\$3,555.67	188.25
	Special privileges.....		90.00	133.00
	Total.....		3,645.67	5,123.27
Tonto.....	Timber sales.....		5.00	
	Grazing.....		8,087.47	559.81
	Special privileges.....		30.00	7.00
	Total.....		8,122.47	566.81
Trabuco Canyon.....	Grazing.....		96.76	.90
	Special privileges.....		17.00	
	Total.....		113.76	.90
Trinity.....	Timber sales.....		250.00	2,390.72
	Grazing.....		4,112.36	25.75
	Total.....		4,362.36	2,416.47
Uinta.....	Timber sales.....	\$1,806.94	11,038.91	13,549.63
	Grazing.....		33,495.84	4,131.42
	Special privileges.....			12.80
	Total.....	1,806.94	44,534.75	17,693.85
Uncompahgre.....	Timber sales.....			630.25
	Grazing.....		5,548.19	33.90
	Special privileges.....			133.15
	Total.....		5,548.19	797.30
Wallowa.....	Timber sales.....		45.85	184.00
	Grazing.....		17,446.71	1,568.33
	Special privileges.....			20.00
	Total.....		17,492.56	1,772.33
Warner Mountains.....	Timber sales.....	987.06	490.63	1,163.35
	Grazing.....		4,750.27	278.68
	Special privileges.....			97.40
	Total.....	987.06	5,240.90	1,539.43
Washington, East.....	Timber sales.....	642.47	535.60	927.90
	Grazing.....		2,608.46	147.00
	Special privileges.....	1.00	40.00	440.00
	Total.....	643.47	3,184.06	1,514.90
Washington, West.....	Timber sales.....	761.09	1,191.45	2,448.43
	Grazing.....		1,521.37	
	Special privileges.....		1.00	7.00
	Total.....	761.09	2,713.82	2,455.43
Weiser.....	Timber sales.....		3,018.05	6,588.41
	Grazing.....		4,735.30	96.70
	Special privileges.....		21.00	41.00
	Total.....		7,774.35	6,726.11
Wenaha.....	Timber sales.....		323.50	196.00
	Grazing.....		12,467.36	92.00
	Special privileges.....		57.50	60.00
	Total.....		12,848.36	348.00
Wet Mountains.....	Timber sales.....		607.47	105.75
	Grazing.....		1,302.75	276.65
	Special privileges.....		13.25	33.10
	Total.....		1,923.47	410.40
White River.....	Timber sales.....	1,679.94	479.22	1,073.68
	Grazing.....		6,596.80	171.10
	Special privileges.....		10.00	43.00
	Total.....	1,679.94	7,086.02	1,287.78

(Witness: Pinchot.)

Total amounts received and deposited in the United States Treasury from different forest reserves for timber sales, etc.—Continued.

Reserve.	Source.	1905.	1906.	1907.
Wichita	Timber sales.....		\$31.00	\$53.90
	Grazing		1,163.50	700.10
	Special privileges		15.00	26.25
	Total		1,209.50	780.25
Yellowstone, Absaroka	Timber sales.....	\$570.91	3,371.39	1,944.52
	Grazing		1,991.12	81.00
	Special privileges			132.37
	Total	570.91	5,362.51	2,167.89
Yellowstone, Shoshone	Timber sales.....	50.00	236.60	5,256.00
	Grazing		4,940.89	431.51
	Special privileges		188.49	60.00
	Total	50.00	5,365.98	5,747.51
Yellowstone, Teton	Timber sales.....	82.10	515.25	607.75
	Grazing		17,454.10	1,443.60
	Special privileges		50.32	41.50
	Total	82.10	18,019.67	2,092.85
Yellowstone, Wind River.....	Timber sales.....	568.00	261.28	5,997.45
	Grazing		7,074.85	184.20
	Special privileges			50.00
	Total	568.00	7,336.13	6,201.65
Huachuca	Timber sales.....			1,532.85
Short Pine	Grazing			106.09
	Special privileges			12.00
	Total			118.09
Fruita	Grazing			51.30
La Sal	Timber sales.....			58.00
	Special privileges			24.50
	Total			82.50
Wasatch	Timber sales.....			101.50
Sierra Madre.....	Timber sales			2,404.23
Coeur d'Alene	do			137.50
Big Hole, North	do			81.50
Ekalaka	do			50.40
Lolo.....	do			115.00
Long Pine	do			294.53
Yuba	Timber sales		467.17	815.15
	Grazing		4,405.97	6.25
	Special privileges		4.00	20.00
	Total		4,877.14	841.40
Bear River.....	Timber sales			3,775.16

RECAPITULATION.

Timber sales.....	\$60,136.62	\$245,013.49	\$384,141.15
Grazing		514,692.87	41,356.46
Special privileges	6.00	7,513.60	11,220.69
Total	60,142.62	767,219.96	436,718.30

(Witness: Pinchot.)

Total amounts received and deposited in the United States Treasury from different forest reserves for timber sales, etc.—Continued.

TOTAL BY STATES.

State.	1905	1906.	1907.
Arizona	\$4,551.22	\$79,766.82	\$78,090.25
California	7,450.91	81,921.27	43,844.20
Colorado	21,293.86	125,418.45	58,599.58
Idaho	938.50	65,314.62	40,086.35
Kansas		1,020.08	132.63
Montana	2,746.97	57,750.39	66,362.54
Nevada		240.00	
Nebraska		7,808.55	781.70
New Mexico	2,485.85	46,945.56	18,924.67
Oklahoma		1,209.50	780.25
Oregon	476.05	75,874.05	21,647.45
South Dakota	12,594.35	35,991.85	12,519.36
Utah	2,756.79	92,165.41	24,532.60
Washington	3,273.02	19,368.27	8,563.20
Wyoming	1,575.10	67,780.08	65,617.88
Alaska		2,880.07	1,235.64
Total	60,142.62	767,219.96	486,718.30

The CHAIRMAN. You say that you have no data by which you can state the number of public schools within the limits of the forest reserves?

Mr. PINCHOT. There are no such data in existence, so far as I know.

The CHAIRMAN. How many post-offices have you included in the forest reserves?

Mr. PINCHOT. Nor have those data been made up, so far as I am aware. It would be possible to do so from the postal maps, but I do not see what purpose it would serve.

The CHAIRMAN. I suppose it would simply indicate the character of the territory which you have already included in the forest reserves.

Mr. PINCHOT. It would tend to establish the fact that there was a certain amount of agricultural land and that there were people living on it inside the outer boundaries of the reserve, which has already been admitted, with the additional statement that we hope there will be more people living there.

The CHAIRMAN. Your proposition is that you have not only included villeges within the forest reserves, but you are making every effort to increase the size of the villages already existing and to create others?

Mr. PINCHOT. Yes, sir; by promoting the settling of all the agricultural land. I may add that the most constant and enthusiastic support we get is from people who live within or near the boundaries of the forest reserves.

The CHAIRMAN. Does your Service take the ground that the forest reserves are not inimical to the agricultural development of the country?

Mr. PINCHOT. We take the ground that the object of the forest reserves is the agricultural and other development of the country, and we are managing the reserves with the specific intention, as the President has repeatedly said, of making them subservient to the foundation and maintenance of permanent homes on the land. That is the object of the whole affair.

(Witness: Pinchot.)

The CHAIRMAN. How much acreage of grazing land have you granted permits for grazing stock upon?

Mr. PINCHOT. We do not grant permits by acres at all, but by the head. Therefore it is impossible to answer that question.

The CHAIRMAN. Can not you give an approximation of the acreage that is grazed over by the permits that you have given?

Mr. PINCHOT. Nearly the whole area of the forest reserves is useful for grazing and is so used. There is an enormous amount of forage which grows in the forests under the trees, as well as that which grows on deforested slopes and in the parks.

The CHAIRMAN. Are we to understand, then, that practically all the forest reserves are utilized for grazing purposes?

Mr. PINCHOT. At least three-fourths of the whole area is more or less used for grazing purposes. Most of the western forests, you understand, are sparse and the trees standing far apart much sunlight reaches the ground and causes a heavy growth of various kinds under the trees.

The CHAIRMAN. Does the preservation of the territory for grazing purposes enter as a factor into the question of including land in forest reserves?

Mr. PINCHOT. Not at all. That is not one of the objects for which the reserves are made, but, incidentally, the fact that we are preserving the forest also preserves the forage within them.

The CHAIRMAN. How many head of stock have you granted permits to graze upon an acre, giving the character of the stock?

Mr. PINCHOT. That question I can answer at present only by saying that we had last summer about 1,250,000 cattle and horses and about 6,000,000 sheep and goats on the forest reserves.

The CHAIRMAN. About how many would that be per acre?

Mr. PINCHOT. If there should be 7,250,000 altogether, divided into 100,000,000 acres, it would be one animal to 15 acres.

The CHAIRMAN. Is 100,000,000 acres the total acreage included in the forest reserves, or 75 per cent of the total area?

Mr. PINCHOT. The total is 127,000,000 acres.

The CHAIRMAN. So you allow for the 25 per cent not grazable?

Mr. PINCHOT. Yes.

The CHAIRMAN. Are your permits granted upon the basis of the area?

Mr. PINCHOT. Not at all.

The CHAIRMAN. Simply granted upon the basis of per capita, so far as the cattle are concerned?

Mr. PINCHOT. Yes; and also the sheep.

The CHAIRMAN. But you have to be governed somewhat by the extent of the area over which you grant permits?

Mr. PINCHOT. We have to be governed entirely by the number of stock the area in question will support and the present condition of the range; the range's capacity is, of course, the prime factor.

The CHAIRMAN. I infer from what you say that it takes about 15 acres to sustain one head of cattle, on the average?

Mr. PINCHOT. That is a rough figure, including cattle, horses, sheep, and goats.

The CHAIRMAN. Which class of stock requires the most pasturage—that is, the greatest area?

Mr. PINCHOT. The horses.

The CHAIRMAN. More than the cattle?

Mr. PINCHOT. Yes; and cattle more than sheep.

The CHAIRMAN. And sheep more than goats?

Mr. PINCHOT. No; goats more than sheep.

The CHAIRMAN. So that the acreage required for the pasturing of these various classes of cattle and stock would begin with the sheep, goats, cattle, and horses?

Mr. PINCHOT. Yes. In addition, it varies enormously from place to place with the value of the range, so that any general figures of that kind would be of little or no value.

The CHAIRMAN. That is to say, the number of acres necessary to sustain these various classes of cattle is not constant?

Mr. PINCHOT. It is not constant nor does it represent the truth to say that it takes 15 acres to support one head in the general estimate. As a matter of fact, it is impossible under all the circumstances to give a figure which fairly represents the case.

The CHAIRMAN. Because the conditions vary so much?

Mr. PINCHOT. Yes; so tremendously from place to place. They vary so much that general figures of that sort mean nothing.

The CHAIRMAN. We understand that the figures you have given as to the number are approximately correct?

Mr. PINCHOT. Approximately correct. I will add that the cattle and horses were distributed among 14,000 owners and the sheep among 2,500 owners.

The CHAIRMAN. Do the figures you have given represent the aggregate number that have been granted permits from the time you took charge of the reserves?

Mr. PINCHOT. No.

The CHAIRMAN. That would be the current use?

Mr. PINCHOT. Yes; the use during last summer. We figure that the number of cattle, sheep, and goats will be increased during the present summer.

The CHAIRMAN. That is on account of the utilization of more territory?

Mr. PINCHOT. The improvement of the range on the territory we already have. The range already shows marked improvement.

The CHAIRMAN. The conditions are improving?

Mr. PINCHOT. Yes; there has been reasonable improvement. For example, in the State of Wyoming there has been an increase of about 20 per cent in the number of sheep.

The CHAIRMAN. In your previous examination you gave an estimate to which I will call your attention right now, that you expected from the funds you are receiving at the end of, say, five years to be able to make your Bureau self-supporting?

Mr. PINCHOT. Yes; that is, in three years more.

The CHAIRMAN. In other words, instead of needing an appropriation of about \$2,000,000, as it is now, you expect the amount collected from the forest reserves, from these various sources, to be about \$3,000,000, roughly speaking?

Mr. PINCHOT. It will take at least \$3,000,000 to run the Service at the end of that time.

(Witness: Pinchot.)

The CHAIRMAN. And you expect to get that result without increasing the personnel of your force?

Mr. PINCHOT. No; the personnel will increase largely. For example, this year we shall spend about \$1,900,000. At the end of the five years I expect the national forests will require more than \$3,000,000. The additional force required will make that absolutely necessary, but I expect to get enough from the reserves to pay the whole amount.

The CHAIRMAN. How much was the Government appropriating annually for this branch of the service before you took charge of the reservations and commenced to collect the income?

Mr. PINCHOT. Three hundred and seventy-five thousand dollars for the forest reserve in the Interior Department and \$425,000 for the Bureau of Forestry in the Agricultural Department.

The CHAIRMAN. There was at that time no income?

Mr. PINCHOT. There was an income of about \$60,000 a year, or less.

The CHAIRMAN. So that the Government was at an expense of \$800,000, approximately speaking?

Mr. PINCHOT. Yes.

The CHAIRMAN. And you expect at the end of five years to make the Bureau self-sustaining?

Mr. PINCHOT. Yes. It should also be said that the service which the reserves were rendering was almost insignificant as compared to what it is now. The expense and revenue were both small because practically nothing was being done toward the development of the forests, the use of the timber, or toward improvement in any direction. Now we are taking the matter up from the other point of view and endeavoring to improve the reserves, make them more useful to the people in their neighborhood, and at the same time take the charge off from the Treasury. That they are more useful is proven by the enormous increase in business. I would like to submit figures showing the increase in business on certain of the reserves, both in timber cutting and in grazing, since the transfer.

The CHAIRMAN. I would like to have you do so. That would represent the development of private industries as well?

Mr. PINCHOT. Yes.

The CHAIRMAN. Incidental to the work you are doing?

Mr. PINCHOT. Precisely.

The CHAIRMAN. Perhaps you would say directly resulting from instead of being incidental to?

Mr. PINCHOT. Yes.

The CHAIRMAN. How many acres of the forest reserves have been withdrawn in each State and Territory and what percentage of the total area of said States and Territories is forest reserves?

Mr. PINCHOT. I will insert the figures for February 1, 1907. It should be remembered that in the areas quoted no deduction is made for private or State holdings within forest reserves, which vary greatly, but aggregate at least 10 per cent of the total area. In certain reserves, especially those which contain much railroad land, this proportion is very much higher.

(Witness: Pinchot.)

Location, date of latest proclamation, and area of the national forest reserves in the United States, Alaska, and Porto Rico.

FEBRUARY 1, 1907.

[Percentage of each State included within reserve boundaries is given in first column.]

State or Territory.	Reserve.	Date of latest proclamation.	Area.	Total.
			<i>Acres.</i>	
Arizona (12.95 per cent)	Baboquivari.....	Nov. 5, 1906	126, 720	
	Black Mesa.....	June 30, 1906	2, 030, 240	
	Chiricahua.....	Nov. 5, 1906	287, 520	
	Grand Canyon ¹	Aug. 8, 1906	2, 267, 300	
	Huachuca.....	Nov. 6, 1906	314, 125	
	Mount Graham.....	July 22, 1902	118, 600	
	Pinal Mountains.....	Mar. 20, 1905	45, 760	
	Prescott.....	Oct. 21, 1899	423, 680	
	San Francisco Mts.....	Apr. 12, 1902	1, 975, 310	
	Santa Catalina.....	July 2, 1902	155, 520	
	Santa Rita.....	Apr. 11, 1902	387, 300	
Tonto.....	Oct. 3, 1905	1, 115, 200		
Tumacacori.....	Nov. 7, 1906	208, 550		
				9, 450, 825
California (19.62 per cent)	Diamond Mountain.....	Oct. 15, 1906	641, 137	
	Klamath.....	May 6, 1905	1, 896, 313	
	Lassen Peak.....	June 2, 1905	897, 115	
	Modoc.....	Nov. 29, 1904	288, 218	
	Monterey.....	June 25, 1906	335, 195	
	Pinnacles.....	July 18, 1906	14, 108	
	Plumas.....	Mar. 27, 1905	579, 520	
	San Bernardino.....	Feb. 25, 1893*	737, 120	
	San Gabriel.....	Dec. 20, 1892*	555, 335	
	San Jacinto.....	Feb. 22, 1897*	668, 160	
	San Luis Obispo.....	June 25, 1906	363, 350	
	Santa Barbara.....	Oct. 3, 1906	1, 982, 100	
	Shasta.....	Sept. 24, 1906	1, 523, 770	
	Sierra.....	July 25, 1905†	5, 049, 934	
	Stanislaus.....	Sept. 7, 1906	1, 296, 800	
	Tahoe ²	Sept. 17, 1906	1, 314, 772	
	Trabuco Canyon.....	Jan. 30, 1889	109, 920	
Trinity.....	Apr. 26, 1905	1, 243, 042		
Warner Mountains.....	Nov. 29, 1904	306, 518		
				19, 882, 487
Colorado (19.08 per cent)	Battlement Mesa.....	June 5, 1905	797, 720	
	Cochetopa.....	June 13, 1905	1, 133, 330	
	Fruita.....	Feb. 24, 1906	7, 680	
	Gunnison.....	May 12, 1905	901, 270	
	Holy Cross.....	Aug. 25, 1905	990, 720	
	La Sal ³	Jan. 25, 1906	29, 502	
	Leadville.....	May 12, 1905	1, 219, 947	
	Medicine Bow ⁴	May 17, 1905	1, 155, 909	
	Montezuma.....	June 13, 1905	576, 719	
	Park Range.....	June 12, 1905	757, 116	
	Pikes Peak.....	May 12, 1905	1, 681, 667	
	San Isabel.....	June 12, 1905	321, 227	
	San Juan.....	June 3, 1905	1, 437, 406	
	Uncompahgre.....	June 14, 1905	478, 111	
	Wet Mountains.....	June 12, 1905	239, 621	
White River.....	May 21, 1904	970, 880		
				12, 698, 825
Idaho (35.30 per cent)	Bear River ⁵	May 28, 1906	415, 360	
	Bitter Root ⁶	May 22, 1905	3, 860, 963	
	Caribou ⁷	Jan. 15, 1907	733, 000	
	Cassia.....	June 12, 1905	326, 160	
	Coeur d'Alene.....	Nov. 6, 1906	2, 331, 280	
	Henry's Lake.....	May 23, 1905	798, 720	
	Kootenai ⁸	Nov. 5, 1906	165, 242	
	Lemhi.....	Nov. 5, 1906	1, 344, 800	
	Payette.....	June 3, 1905	1, 460, 960	
	Pocatello.....	Sept. 5, 1903	49, 920	
	Priest River ⁹	Nov. 6, 1906	812, 040	
	Raft River ¹⁰	Nov. 5, 1906	293, 044	
	Salmon River.....	Nov. 5, 1906	1, 879, 680	
Sawtooth.....	Nov. 6, 1906	3, 340, 160		
Weiser.....	May 10, 1906	1, 059, 520		
Yellowstone ¹¹	May 22, 1905	177, 960		
				19, 048, 806

¹ Game preserve created in the Grand Canyon Forest Reserve by proclamation November 28, 1906.² Total of Tahoe in Nevada and California=1,453,887 acres.³ Total of La Sal in Colorado and Utah=158,462 acres.⁴ Total of Medicine Bow in Colorado and Wyoming=1,574,668 acres.⁵ Total of Bear River in Idaho and Utah=683,281 acres.⁶ Total of Bitter Root in Idaho and Montana=4,552,880 acres.⁷ Total of Caribou in Idaho and Wyoming=740,740 acres.⁸ Total of Kootenai in Idaho and Montana=1,052,602 acres.⁹ Total of Priest River in Idaho and Washington=916,000 acres.¹⁰ Total of Raft River in Idaho and Utah=410,247 acres.¹¹ Total of Yellowstone in Idaho, Montana, and Wyoming=7,983,560 acres.

* Minor modification by Executive order since date listed.

† Minor modification by act of Congress since date listed.

(Witness: Pinchot.)

Location, date of latest proclamation, and area of the national forest reserves in the United States, Alaska, and Porto Rico—Continued.

State or Territory.	Reserve.	Date of latest proclamation.	Area.	Total.		
Kansas (0.18 per cent)	Garden City	July 25, 1905	Acres. 97,280	97,280		
	Big Belt	Oct. 3, 1905	630,260			
	Big Hole	Nov. 5, 1906	1,612,960			
	Bitter Root ¹	May 22, 1905	691,920			
	Crazy Mountains	Aug. 10, 1906	234,760			
	Elkhorn	May 12, 1905	186,240			
	Ekalaka	Nov. 5, 1906	33,808			
	Gallatin	Mar. 7, 1906	888,660			
	Helena	Apr. 12, 1906	782,160			
	Hell Gate	Sept. 14, 1906	1,582,400			
Montana (18.49 per cent)	Highwood Mountains	Dec. 12, 1903	45,080	17,344,883		
	Kootenai ²	Nov. 5, 1906	887,360			
	Lewis and Clark	June 9, 1903	4,670,720			
	Little Belt	Nov. 6, 1906	1,062,120			
	Loio	Nov. 6, 1906	1,211,680			
	Long Pine	Sept. 24, 1906	111,445			
	Madison	Oct. 3, 1905	958,800			
	Missoula	Nov. 6, 1906	194,430			
	Pryor Mountains	Nov. 6, 1905	204,320			
	Snowy Mountains	Nov. 5, 1906	126,080			
	Yellowstone ³	May 22, 1905	1,229,680			
	Nebraska (1.12 per cent)	Dismal River	Apr. 16, 1902		85,123	556,072
		Niobrara	do		123,779	
North Platte		Mar. 10, 1906	347,170			
Nevada (1.08 per cent)	Charleston	Nov. 5, 1906	149,165	766,959		
	Independence	do	135,019			
	Ruby Mountains	May 3, 1906	423,660			
	Tahoe ⁴	Sept. 17, 1906	59,115			
New Mexico (8.95 per cent)	Gallinas	Nov. 5, 1906	38,212	7,024,504		
	Gila	July 21, 1905	2,823,900			
	Jemez	Nov. 7, 1906	1,460,215			
	Lincoln	June 25, 1906	545,256			
	Magdalena	Nov. 5, 1906	146,240			
	Manzano	Nov. 6, 1906	459,726			
	Mount Taylor	Oct. 5, 1906	110,525			
	Pecos River	May 27, 1898*	430,880			
	Peloncillo	Nov. 5, 1906	178,977			
	Portales	Oct. 3, 1905	172,680			
Oklahoma (0.24 per cent)	San Mateo	Nov. 5, 1906	424,663	60,800		
	Taos	Nov. 7, 1906	233,209			
	Wichita ⁵	May 29, 1906	60,800			
	Ashland	Apr. 24, 1906	21,120			
	Blue Mountains	Mar. 15, 1906	2,675,620			
	Bull Run	June 17, 1892	142,080			
Oregon (20.19 per cent)	Cascade Range	Jan. 25, 1907	5,355,320	12,500,728		
	Chesimnus	May 12, 1905	220,320			
	Fremont	Sept. 17, 1906	1,235,720			
	Goose Lake	Aug. 21, 1906	630,000			
	Heppner	July 18, 1906	292,176			
	Mauzy Mountain	June 2, 1905	51,220			
	Siskiyou	Oct. 5, 1906	713,702			
	Wallowa	May 6, 1905	717,200			
	Wenaha ⁶	May 12, 1905	413,250			
South Dakota (2.54 per cent)	Black Hills ⁷	Sept. 19, 1898†*	1,163,160	1,263,720		
	Cave Hills	Mar. 5, 1904	23,360			
	Short Pine	July 22, 1905	19,040			
	Slim Buttes	Mar. 5, 1904	58,160			

¹ Total of Bitter Root in Idaho and Montana=4,552,880 acres.² Total of Kootenai in Idaho and Montana=1,052,602 acres.³ Total of Yellowstone in Idaho, Montana, and Wyoming=7,988,560 acres.⁴ Total of Tahoe in Nevada and California=1,463,887 acres.⁵ Game preserve created in the Wichita Forest Reserve by proclamation June 2, 1905.⁶ Total of Wenaha in Oregon and Washington=731,650 acres.⁷ Total of Black Hills in South Dakota and Wyoming=1,209,600 acres.

* Minor modification by Executive order since date listed.

† Minor modification by act of Congress since date listed.

(Witness: Pinchot.)

Location, date of latest proclamation, and area of the national forest reserves in the United States, Alaska, and Porto Rico—Continued.

State or Territory.	Reserve.	Date of latest proclamation.	Area.	Total.
			<i>Acres.</i>	
Utah (12.37 per cent)	Aquarius.....	Oct. 24, 1903	639,000	
	Bear River ¹	May 28, 1906	267,920	
	Beaver.....	Jan. 24, 1906	261,593	
	Dixie.....	Sept. 25, 1905	465,920	
	Fillmore.....	May 19, 1906	399,600	
	Fish Lake.....	Jan. 22, 1906	283,800	
	Grantsville.....	May 7, 1904	68,960	
	La Sal ²	Jan. 25, 1906	128,960	
	Manti.....	Jan. 18, 1906	777,920	
	Payson.....	July 21, 1905	167,280	
	Raft River ³	Nov. 5, 1906	117,203	
	Salt Lake.....	May 26, 1904	95,440	
	Sevier.....	Jan. 17, 1906	710,320	
Uinta ⁴	Oct. 6, 1906	2,187,550		
Vernon.....	Apr. 24, 1906	68,800		
Wasatch.....	Aug. 16, 1906	85,440		
				6,731,306
Washington (17.59 per cent)	Mount Rainier.....	Feb. 22, 1897†	1,943,520	
	Olympic.....	July 15, 1901	1,666,880	
	Priest River ⁵	Nov. 6, 1906	103,960	
	Washington.....	June 12, 1905	3,952,840	
	Wenaha ⁶	May 12, 1905	318,400	
				7,785,600
Wyoming (13.78 per cent)	Big Horn.....	Dec. 23, 1904	1,151,680	
	Black Hills ⁷	Sept. 19, 1898*†	46,440	
	Caribou ⁸	Jan. 15, 1907	7,740	
	Crow Creek.....	Oct. 10, 1900*	56,320	
	Medicine Bow ⁹	May 17, 1905	417,759	
	Sierra Madre.....	Nov. 5, 1906	370,911	
	Uinta ⁴	Oct. 6, 1906	4,596	
Yellowstone ¹⁰	May 22, 1905	6,580,920		
				8,637,366
Total of 136 forest reserves in the United States.....				123,850,161
Alaska (1.29 per cent)	Afognak.....	Dec. 24, 1892	403,640	
	Alexander Archipelago.....	Aug. 20, 1902	4,506,240	
				4,909,880
Porto Rico (2.99 per cent)	Luquillo.....	Jan. 17, 1903	65,950	
				65,950
Grand total of 139 forest reserves.....				128,825,991

¹ Total of Bear River in Utah and Idaho=683,280 acres.

² Total of La Sal in Utah and Colorado=158,462 acres.

³ Total of Raft River in Utah and Idaho=410,247 acres.

⁴ Total of Uinta in Utah and Wyoming=2,192,146 acres.

⁵ Total of Priest River in Washington and Idaho=916,000 acres.

⁶ Total of Wenaha in Washington and Oregon=731,650 acres.

⁷ Total of Black Hills in Wyoming and South Dakota=1,209,600 acres.

⁸ Total of Caribou in Wyoming and Idaho=740,740 acres.

⁹ Total of Medicine Bow in Wyoming and Colorado=1,574,668 acres.

¹⁰ Total of Yellowstone in Wyoming, Idaho, and Montana=7,988,560 acres.

† Minor modification by act of Congress since date listed.

* Minor modification by Executive order since date listed.

The CHAIRMAN. How much timber, in quantity and value realized, has been sold by the Government from each reserve, giving by State, reserve, and county?

Mr. PINCHOT. Those figures have all been made out for the last fiscal year, and I will insert them at this point. Under the heading "Timber sold" in this statement is included the timber under contract in a number of sales. Some of the sales extend through a period of years, a certain proportion of the amount to be cut each year.

The receipts from timber during the current year may not be more than one-half of the value of the timber sold, depending on the amount cut. All timber is paid for in advance of cutting.

FISCAL YEAR OF 1906.

	Timber applied for from July 1, 1905, to June 30, 1906, inclusive.				Timber sold and under contract. (For actual receipts see attached fiscal statement from July 1, 1905, to June 30, 1906.)					
	Feet B. M.	Cords.	Lineal feet.	Posts and poles.	Value.	Feet B. M.	Cords.	Lineal feet.	Posts and poles.	Value.
Alaska:										
Alexander Archipelago.....	2,252,616	1,132	43,229		\$1,423.80	2,252,616	1,132	43,229		\$1,423.80
Arizona:										
Black Mesa.....	840,000				1,620.00	840,000				1,620.00
Prescott.....	214,349	3,980		50	1,862.90	214,349	3,980		50	1,862.90
Grand Canyon, North.....	184,000				181.00	184,000				181.00
Grand Canyon, South.....		130		950	80.00		130		950	80.00
San Francisco Mountains.....	30,599,000	663			50,343.00	28,802,000	643			65,008.38
Santa Rita.....		175			87.50		175			87.50
Santa Catalina.....										
Mount Graham.....	566,000			200	852.00	556,000			200	852.00
Chiricahua.....	2,000,000	12,985		250	9,006.50		810			264.00
Pinal Mountains.....		219			162.50		20			162.50
Tonto.....		20			5.00		20			5.00
Total.....	34,403,349	18,172	1,450	1,450	94,203.40	27,596,349	5,977	1,200	1,200	70,176.28
California:										
Tahoe.....										
Stanislaus.....	40,000	10		57,000	198.00	40,000	10		57,000	198.00
Sierra, North.....	16,756,000				10,235.16	5,378,000				8,107.00
Sierra, South.....	5,332,643				10,021.62					
Santa Barbara.....	4,300,000				3,861.15	4,300,000				3,861.15
San Bernardino.....		214			48.37		214			48.37
San Gabriel.....				α 600	300.00				α 600	300.00
San Jacinto.....										
Phinas.....	2,950,000	250			3,000.00	84,282	199			159.05
Trinity.....	500,000	200			600.00	500,000	200			600.00
Klamath.....	723,200				1,446.40					
Shasta.....										
Total.....	30,601,843	4814	57,600	57,600	29,607.70	10,302,282	4304	57,600	57,600	13,170.57
Colorado:										
Battlement Mesa.....	12,000			325	101.25	12,000			325	101.25
Pikes Peak.....	4,857,449	2,270		25,620	7,576.93	5,307,449	5,270		25,620	8,086.99
White River.....	115,000			300	207.62	248,340			300	341.02
San Isabel.....	71,165	885		9	320.09	71,165	885		9	320.09
Gunnison.....	1,405,876	922		10	2,862.09	705,876	822		10	1,102.09
Leadville.....	6,300,768	6,306		100	8,970.53	5,295,768	5,306		100	7,695.53
Medicine Bow.....	1,607,166	602			1,357.25	1,607,166	602			1,357.25

α Trees.

(Witness: Pinchot.)

FISCAL YEAR OF 1906—Continued.

	Timber applied for from July 1, 1905, to June 30, 1906, inclusive.					Timber sold and under contract. (For actual receipts see attached fiscal statement from July 1, 1905, to June 30, 1906.)				
	Feet B. M.	Cords.	Lineal feet.	Posts and poles.	Value.	Feet B. M.	Cords.	Lineal feet.	Posts and poles.	Value.
Forest reserves by States.										
Colorado—Continued.										
San Juan.....	365,000			40	\$129.50	65,000			40	\$129.50
Park Range.....				2,200	440.00				2,200	440.00
Wet Mountain.....	203,600	20		1,009	312.95	203,600	20		1,009	312.95
Cochetopa.....	8,150,797	632		1,200	9,619.35	2,369,777	907		1,200	2,551.35
Montezuma.....	543,731				968.97	26,654				39.99
Holy Cross.....	12,266,248	2,088			16,839.28	11,368,624	2,088			16,043.83
Total.....	35,898,808	13,725		23,913	49,705.87	27,281,329	15,900		29,913	38,531.84
Idaho:										
Bitter Root.....	420,500	440			794.50	420,500	440			794.50
Sawtooth.....	85,868,150	364		5,770	52,575.50	2,867,500	864		5,770	8,755.60
Weiser.....	4,280,000	860		2,500	7,050.00	4,280,000	860		2,500	7,050.00
Henry's Lake.....	4,834,316	420		8,000	16,435.63	1,284,316	370		7,500	1,716.18
Payette.....	5,786	9		90	33.70	5,786	9		90	33.70
Cassia.....		80		547	101.57		80		547	101.57
Total.....	45,409,252	2,173		16,907	76,920.90	8,858,102	2,123		16,407	13,381.50
Montana:										
Yellowstone (Absaroka division).....	52,102,000	120	412	130,200	104,776.75	52,102,000	120	412	130,200	104,776.75
Bitter Root.....	21,465,000	2			62,741.10	265,486	2			841.84
Gallatin.....	67,670	5		194	171.99	67,670	5		194	171.99
Lewis and Clark, North.....	20,012,000	1,204		25	12,000	12,000	1,204		25	144.00
Madison.....	367,289	860		17,200	949.07	367,289	860		17,200	949.07
Little Belt.....	185,000	328	60,600		668.00	185,000	328	60,600		668.00
Elkhorn.....		329			131.49		329			131.49
Hell Gate.....	81,450	3,846		500	2,037.90	84,450	3,846		500	2,037.90
Helena.....	1,018,000	212		8,000	2,096.50	18,000	212		8,000	96.50
Lewis and Clark, South.....	410,000	166			243.40	410,000	166			243.40
Total.....	95,712,409	7,072	61,012	151,119	173,816.20	53,512,895	7,072	61,012	151,119	109,560.94
New Mexico:										
Gila.....	896,667	6,860	64,461	1,500	3,461.11	898,856	6,860	38,761	1,500	3,205.80
Pecos.....	33,000	800		3,000	308.00	33,000	800		3,000	308.00
Lincoln.....	93,000	661	160	2,610	247.80	93,000	661	160	2,610	247.80
Jemez.....	45,300,000	300			100,900.00					
Total.....	46,322,667	8,621	64,621	7,110	104,916.41	1,024,856	8,321	38,921	7,110	3,761.10

FOREST SERVICE.
(Witness: Pinchot.)

	3	100	12.00		8	100	12.00
Oklahoma:							
Wichita.....							12.00
Oregon:							
Cascade Range, North.....	40		215.00	150,000	40		215.00
Cascade Range, South.....	72½		36.25	160,000	72½		200.00
Ashland.....		80,000	25.75	13,500		80,000	36.25
Wallowa.....			100.00	100,000			26.75
Wenaha.....			15.00	15,000			100.00
Chesnimus.....	178½	100	117.85		178½	100	15.00
Mauzy Mountain.....							
Baker City.....							117.85
Total.....	291	80,000	510.75	438,500	291	80,000	710.85
South Dakota:							
Black Hills.....	29,475	42,950	57,981.46	72,951,780	29,328	42,450	85,265.87
Utah:							
Fish Lake.....			16.00	16,000			16.00
Uintah.....			12,693.11	9,104,314			12,867.50
Payson.....	8	1,065	4.00		8		4.00
Mancos.....	44	50	1,822.61	800,510	44	50	822.61
Agartius.....	400		131.00	120,000	400		131.00
Grantsville.....	220		33.00	10,000	220		33.00
Salt Lake.....		200	\$29.00	155,000		200	33.00
Sevier.....	25		390.99	367,660	25		390.99
Dixie.....	700	850	60.25	74,000	700	850	390.99
Beaver.....							60.25
Logan.....			61.00	30,000			61.00
Total.....	1,485	1,100	15,540.96	10,677,484	2,025	1,100	14,715.35
Washington:							
Mount Rainier.....	20		7,057.25	145,000	20		89.25
Olympic.....	417		1,680.00	600,000	417		575.00
Washington, East.....	58		473.00	347,000	58		473.00
Washington, West.....	2	2,100	2,275.00	597,500	2	2,100	1,428.75
Wenaha.....			311.50	300,000			311.50
Total.....	497	2,100	11,796.75	1,989,500	1,997	2,100	2,877.50
Wyoming:							
Black Hills.....	25		238.75	50,560,000	25		125,596.25
Big Horn.....	1,263		340,054.71	19,628,683	1,263		19,874.16
Medicine Bow.....			10.00	5,000			10.00
Yellowstone (Shoshone division).....	167	100	347.75	802,000	167	100	647.75
Yellowstone (Teton division).....	125	3,750	455.00	760,000	125	3,750	1,580.00
Yellowstone (Wind River division).....							
Total.....	1,580	3,850	341,106.21	71,255,683	1,580	3,850	147,408.16
Grand total, fiscal year 1906.....	84,707	314,299	957,492.41	287,140,818	76,179	313,049	500,945.76

The CHAIRMAN. You mean by that that you have the quantity of timber, the number of thousand feet, and the amount realized therefrom?

Mr. PINCHOT. Yes.

The CHAIRMAN. So you can give both amounts, the amount sold and the amount received?

Mr. PINCHOT. Yes.

The CHAIRMAN. How much money has been realized from the grazing permits upon each reserve?

Mr. PINCHOT. Those figures also have been made up and appear in the schedule of receipts previously inserted on pages 838 to 845, inclusive, of this hearing.

The CHAIRMAN. Can you give them in the same detail that I have inquired about in connection with the timber land?

Mr. PINCHOT. I can.

The CHAIRMAN. That is, give them in the various sections, state and county?

Mr. PINCHOT. I am not sure about the counties.

The CHAIRMAN. How much money is now in the special fund resulting from the sale of timber and grazing land, stated separately?

Mr. PINCHOT. That I will insert here to the close of business to-day—\$313,649.90.

The CHAIRMAN. Are you able to differentiate between the funds after they reach the Treasury?

Mr. PINCHOT. There is but one fund.

The CHAIRMAN. Do you keep any separate account of the timber fund and the grazing fund?

Mr. PINCHOT. Not in the Treasury.

The CHAIRMAN. After they reach the place of deposit the sums received from timber and grazing and special permits are kept in one account?

Mr. PINCHOT. Yes, sir.

The CHAIRMAN. So it results in one sum and one balance?

Mr. PINCHOT. Yes.

The CHAIRMAN. We understood from Mr. Adams, your fiscal agent, that there were no privileges granted to any person for the use of the forest reserves except such as were terminable as a matter of law when the territory ceased to be a reserve and that the permits were also terminable at the will of the Secretary of Agriculture.

Mr. PINCHOT. I think you have received a somewhat erroneous impression. It is true that all privileges granted are terminable when the reserve ceases to exist, but many of the privileges are not terminable at the will of the Secretary.

The CHAIRMAN. What is the character of the privileges not terminable at the will of the Secretary?

Mr. PINCHOT. Rights of way and privileges within forest reserves in the nature of an easement are by law under jurisdiction of the Secretary of the Interior (act of February 1, 1905, 33 Stat. L., 628). All other rights of way and privileges are granted by the Secretary of Agriculture. Those granted under the act of February 15, 1901 (31 Stat. L., 790), for electrical purposes, etc., are by the law itself revocable at the will of the Secretary. All other rights of

(Witnesses: Pinchot, Zappone.)

way and privileges granted by the Secretary of Agriculture may be revocable at will or be granted for a fixed period, as he may provide by the rules and regulations authorized by the act of June 4, 1897 (30 Stat. L., 34-36), and the forest-reserve transfer act of February 1, 1905 (33 Stat. L., 628). A period of years is fixed when the business necessities of the case make it advisable.

The CHAIRMAN. Yes; very well.

How many men are now employed in each branch of the Forest Service? Will you be kind enough to state in detail and give a full list and the compensation paid to each man by classes? I will ask you whether the classified and analyzed list of expenditures submitted by the Department to us does not cover that ground?

Mr. PINCHOT. It covers that ground entirely.

The CHAIRMAN. Then, will you insert in your answer to that question an extract from it?

Mr. PINCHOT. I refer you to information collected by your committee from the Department, which precisely answers this question.

The CHAIRMAN. Then, as I understand, the report of expenditures prepared under our direction gives complete details under this question?

Mr. PINCHOT. That is my understanding.

Mr. ZAPPONE. That is all there.

The CHAIRMAN. Can you state in detail the amounts paid out of the special fund and for what purpose they were paid?

Mr. PINCHOT. That is shown by our accounts, and to answer that question would be simply to reproduce a set of our accounts.

The CHAIRMAN. Is there any distinction between the special fund and the fund annually appropriated by Congress for that?

Mr. PINCHOT. There is.

The CHAIRMAN. In disbursement?

Mr. PINCHOT. In disbursement. There is a difference in the wording of the appropriation for the two.

The CHAIRMAN. Yes; but is there any difference in the manner in which they are used in the Forest Service?

Mr. PINCHOT. They are kept separate, and we know at all times the balance in each fund.

The CHAIRMAN. Is there any difference in the character of the expenditures under each?

Mr. PINCHOT. The expenditures are made under precisely the same regulations and are analogous entirely. They are made for the same purpose, but there is a difference in the wording, so that certain items of expenditure can not be paid out of the forest-reserve fund. You understand that to be the case, Mr. Zappone?

Mr. ZAPPONE. In a general way, yes.

Mr. PINCHOT. That is shown in the report made to your committee.

The CHAIRMAN. What is the character of the items paid out of the special fund as distinguished from those of the general appropriation?

Mr. PINCHOT. Under section 5 of the act of February 1, 1905, the special fund can be used only for the administration, etc., of the forest reserves, while the general appropriation is available for that purpose and also for carrying on forest investigations not directly involving the administration of the reserves.

(Witnesses: Pinchot, Zappone.)

The CHAIRMAN. Are those amounts paid out of the special fund that are not common to the general appropriation stated in the report of expenditures made to us by the Department of Agriculture, so that they can be referred to and identified?

Mr. PINCHOT. They are. Are they not, Mr. Zappone?

Mr. ZAPPONE. They are, sir.

The CHAIRMAN (to Mr. Pinchot). Will you be kind enough to point out in detail exactly where they may be found in the report of expenditures made to us?

Mr. PINCHOT. Yes. They are to be found on pages 741 to 810.

The CHAIRMAN. That will prevent duplication of the testimony. (Reading from paper:)

State fully the permits issued for grazing on forest reserves, giving the name and extent of each permit.

Mr. PINCHOT. Do I understand, Mr. Chairman, that you want a list of the 16,000 permits issued, with the number of stock for which each was issued?

The CHAIRMAN. I am inclined to think that is the scope of Senator Heyburn's question; but I could not very well include that in the report of our hearings.

Mr. PINCHOT. It would take a good while to make it up, too. Would it not be sufficient if I gave you a statement of the number of permits and the number of head of stock in each State?

The CHAIRMAN. If you will do that, giving the number of head of cattle or stock in each State, I will have that submitted to Senator Heyburn, and then, if in addition to that he wishes you to prepare a detailed list of all the permits, I will call your attention to that and ask you to have it done.

Mr. PINCHOT. I can give you that information at once.

Grazing permits for the season of 1906.

State or Territory.	Cattle and horses.			Sheep and goats.	
	Number of permits.	Number of stock for summer season.	Number of stock for year-long season.	Number of permits.	Number of stock for summer season.
Arizona	581	30,096	67,718	87	347,208
California	1,979	132,256	20,529	190	403,688
Colorado	2,774	231,060	8,605	185	420,009
Idaho	385	29,053	531	182	878,550
Kansas	16	3,215	.....	.....	.....
Montana	1,373	93,514	6,862	79	249,908
Nebraska	62	26,806	405	.....	.....
New Mexico	878	10,274	53,454	234	312,035
Oklahoma	37	384	2,153	.....	.....
Oregon	916	75,656	1,242	352	1,124,539
South Dakota	433	13,041	.....	.....	.....
Utah	3,376	93,255	294	888	1,148,771
Washington	512	25,520	1,209	108	282,793
Wyoming	772	85,643	2,443	195	594,699
Total	14,093	849,703	166,445	2,500	5,768,100

(Witness: Pinchot.)

Increases in the number of stock allowed to graze on the forest reserves since the transfer from the Department of the Interior to the Department of Agriculture.

Reserve.	Cattle and horses.	Sheep.
Arizona:		
Black Mesa		20,000
Grand Canyon, North	1,500	10,000
Grand Canyon, South	5,000	50,000
Prescott	3,150	3,500
San Francisco Mountains	6,000	20,000
Total	15,650	103,500
New Mexico:		
Gila	5,000	
California:		
Tahoe	14,400	70,000
Santa Barbara	4,250	3,500
San Gabriel	450	
San Jacinto	300	
Stanislaus	2,500	55,000
Sierra, North	9,000	26,000
Sierra, South	8,000	
Total	38,900	154,500
Colorado:		
Battlement Mesa		1,500
Pikes Peak	4,850	15,000
Total	4,850	16,500
Idaho:		
Bitter Root	7,500	14,000
Montana:		
Lewis and Clark, South	1,000	
Little Belt	5,600	12,000
Madison	6,000	22,000
Highwood Mountains	1,500	3,000
Total	14,100	37,000
Oklahoma:		
Wichita	500	
Oregon:		
Cascade, North	2,450	
Utah:		
Fish Lake	5,150	29,250
Manti	13,000	21,000
Payson	3,500	3,120
Uintah		11,000
Total	21,650	64,370
Washington:		
Washington, East	6,000	10,000
Washington, West		15,000
Total	6,000	25,000
Wyoming:		
Medicine Bow	1,000	15,000
Yellowstone, Absaroka		24,000
Yellowstone, Teton		40,000
Yellowstone, Wind River		15,000
Yellowstone, Shoshone		40,000
Total	1,000	134,000
Grand total	117,600	548,870

The CHAIRMAN. How long would it take your clerks to prepare the list of the permits, giving the names of the permittees and the extent of the permit in each case?

Mr. PINCHOT. I think it would take a week or ten days. Or I could bring you here a card catalogue of all these permits, which might answer the same purpose.

The CHAIRMAN. If the Senator desires it, we will be glad to have you furnish that information, but unless he desires it in that detail I would not want to encumber the record with it. (Reading:)

State fully the character of the land surrendered in each forest reserve, or by whom surrendered for the—

Mr. PINCHOT. I think I can read that for you. It is "lieu." The word that probably troubles you there is "lieu."

The CHAIRMAN (continuing)—

For which lieu right of selection has been allowed, and to what extent such lieu selections have been made. State by whom such rights to select new lands have been exercised, and where such lands have been selected. State what part of the land surrendered as base for lieu selection has been merchantable timber land, what part has been grazing land, what part has been arid land, and upon what character of land the lieu selection has been exercised, and where.

Mr. PINCHOT. The law to which this question refers was repealed two years ago. The information asked for could be obtained, so far as it exists, only by a lengthy survey of the records of the General Land Office.

The CHAIRMAN. You mean a lengthy examination?

Mr. PINCHOT. Yes; a lengthy examination of the records of the General Land Office. Much of the information it would be impossible to give, because much of the so-called "scrip" has not yet been located, nor can it be known with any accuracy how much of the land was timber land and how much grazing land. The law was an exceedingly bad law, and I am proud to say that it was largely through the efforts of the Public Lands Commission, of which I have the honor to be a member, that it was repealed.

The CHAIRMAN. Were the forest reserves administered by your Service during the time of the operation of the law?

Mr. PINCHOT. They were not.

The CHAIRMAN. So that whatever was done under that law in the matter of lieu selections was done prior to the placing of the Forest Service under your Department?

Mr. PINCHOT. That is so.

The CHAIRMAN. You have no records in your own office bearing upon that subject?

Mr. PINCHOT. No, sir.

The CHAIRMAN. From your knowledge of it, gathered from your experience as a member of the Public Lands Commission, is it practicable to get the concrete and detailed information desired by the writer of the question?

Mr. PINCHOT. I do not believe it is.

The CHAIRMAN. Could you get approximate results?

Mr. PINCHOT. A rough approximation could be reached, but it would be exceedingly laborious, and in the end would give results of so general a character as to be, so far as I can see, of no probable value.

(Witness: Pinchot.)

The CHAIRMAN. The information inquired for, in any event, would have to come from another Department?

Mr. PINCHOT. It must come from the Land Office.

The CHAIRMAN. Will you be kind enough to take the matter up with the Land Office and see if they can give any reasonable approximation, within a reasonable time, in answer to the inquiry?

Mr. PINCHOT. I will be very glad to do so.

The CHAIRMAN. And if they can, and we do not get it in time for printing as part of our investigation, be kind enough to have him transmit the information to Senator Heyburn.

Mr. PINCHOT. I will do so.

The CHAIRMAN. State the quantity of land represented by sections 16 and 36 included in forest reserves in each State and Territory.

Mr. PINCHOT. That can be arrived at approximately by taking one-eighteenth of the total area of the forest reserves, which amounts to about 7,000,000 acres.

The CHAIRMAN. Will you make a statement of the amount in each State and Territory on that hypothesis?

Mr. PINCHOT. Yes.

The CHAIRMAN. The eighteenth you speak of gives the result following from that premise?

Mr. PINCHOT. One-eighteenth, I should say. There are 36 sections in a township.

The CHAIRMAN. It says sections 16 and 36.

Mr. PINCHOT. There are 36 sections in a township. Half of 36 is 18.

The CHAIRMAN. They are all of uniform size?

Mr. PINCHOT. They are supposed to be just 1 mile square.

The CHAIRMAN. I think that covers everything—

Mr. SAMUEL. All but that letter.

The CHAIRMAN. I will read it to Mr. Flood, because he has not heard it. Inasmuch as I have had some correspondence with Senator Fulton in the matter before us, I think I should make my letter to him and his reply to me a part of the record. The letters are as follows [reads]:

COMMITTEE ON EXPENDITURES IN THE DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., February 16, 1907.

HON. CHARLES W. FULTON,
United States Senate.

MY DEAR SENATOR: Referring to my conversation with you yesterday, I have just read your remarks in the Senate of Thursday last, in which you state "I think it (Forestry Bureau) is the worst organized department of the Government. I think the manner in which it is conducted is less creditable to those who have charge of it than any other department."

This is one of the matters into which it is the duty of the Committee on Expenditures in the Department of Agriculture to inquire. We have not yet finished our examination of the Department, but, so far as we have investigated that Bureau, the direct opposite to what you state has been developed. We expect to have Mr. Pinchot before us to-day for examination, and I should be very glad to have you present and cross-examine him for the purpose of developing any facts that may exist.

If, however, to-day would not be convenient for you, I will arrange to have him before the committee at some time that is convenient for you. If, on the other hand, it is not convenient for you to be present and cross-examine him, if you will be kind enough to furnish me with the facts upon which you base

(Witness: Pinchot.)

your statement I will see that a thorough examination is made upon the lines you may indicate, as we are anxious to develop the precise facts in connection with this, as all of the other bureaus in the Department.

As we are anxious to close our examination at the earliest possible moment, I should like to have a reply, indicating your wishes in the matter, as early as may be convenient.

Yours, very respectfully,

C. E. LITTLEFIELD.

DEAR MR. LITTLEFIELD: I make no charge of corruption or dishonesty. It is the general policy to which I refer and could not explain in short note. I expect to speak more at length on the subject when the agricultural appropriation bill is again taken up. They are including to my personal knowledge within forest reserves vast areas that are untimbered; are making and enforcing unreasonable rules for rights of way and for water rights and privileges, etc. Understand, it is the policy and manner of administering the reserves to which I object, and it is not possible here to go into detail. I thank you, but I am too busy to attend examination.

C. W. FULTON.

Mr. SAMUEL. Mr. Pinchot, in view of some of the statements made in Senator Fulton's answer to Mr. Littlefield's letter, I would like to ask you some questions. Are you making and enforcing unreasonable rules for rights of way and privileges?

Mr. PINCHOT. We are not.

The CHAIRMAN. What rules have you, so that we can see in our judgment whether they are reasonable or unreasonable?

Mr. PINCHOT. I can in the absence of a copy of the rules give you only a general statement of a very complicated subject. Congress has from time to time passed a variety of laws granting rights of way, or specifying methods by which rights of way can be obtained, over public lands, both in and out of forest reserves. In a forest reserve, when an application is made for a right of way the application is referred to the forest officer in charge for a report as to whether granting that right of way will interfere with any public interests. Upon his report action is taken, either directly granting or refusing what is asked for, or making a recommendation to the Secretary of the Interior, who in cases where he has the right to grant these rights of way refers them to the Department of Agriculture for a report upon the facts in the case in order not to take action which would be detrimental to the public interests.

The CHAIRMAN. Now, in case that right of way is granted, is that permanent, or does it extend for a definite period of time, or is the continuation of that right of way at the will of the Forester?

Mr. PINCHOT. In some cases it is at the will of the Secretary of Agriculture, who has by regulation temporarily delegated his authority to the Forester, and in some cases it is terminable at the will of the Secretary of the Interior, and in some cases terminable depending on which one of the numerous laws he makes his application under.

The CHAIRMAN. Has he the election as to the law under which he may apply?

Mr. PINCHOT. He may be required by the various circumstances of the case to make application under a certain law.

The CHAIRMAN. Wherever he happens to be, and in whatever situation he finds himself, that situation is controlled by the Congressional legislation?

(Witness: Pinchot.)

Mr. PINCHOT. Yes; by Congressional legislation.

The CHAIRMAN. And whatever you do in the premises in that case you do in accordance with the legislation?

Mr. PINCHOT. Yes, and in no other way.

The CHAIRMAN. If the legislation determines it itself, or in terms provides that it is terminable at the will of the Secretary of the Interior or the Secretary of Agriculture, that is the way you do it?

Mr. PINCHOT. Yes.

The CHAIRMAN. You have no power to regulate on that subject?

Mr. PINCHOT. We have only power to make regulations in furtherance or execution of the laws of Congress and inside the limitations fixed by those laws.

The CHAIRMAN. Now, do those suggestions apply to water rights and privileges?

Mr. PINCHOT. Precisely. We are bound in the whole matter by the laws which govern the individual cases.

The CHAIRMAN. Would it occupy too much space to quote that legislation?

Mr. PINCHOT. I would be very glad to insert it. It will take eight or ten pages. It can be put right in here.

The CHAIRMAN. Eight or ten pages of print?

Mr. PINCHOT. Yes. There is a whole lot of it, and it is very mixed up.

The CHAIRMAN. I do not think I will ask you, then, to insert it; but I would like you to refer to it by chapter, page, and volume.

Mr. PINCHOT. I will give the dates of the acts and cite chapter, page, and volume.

Railroads: Act of March 3, 1875 (18 Stat L., 482). Act of March 3, 1899 (30 Stat. L., 1233).

Irrigation: Act of March 3, 1891 (26 Stat. L., 1101), sections 18, 19, 20, 21. Act of May 11, 1898 (30 Stat. L., 404), section 2.

Municipal and mining: Act of February 1, 1905 (33 Stat. L., 628), section 4.

Medicinal springs: Act of February 28, 1899 (30 Stat. L., 908).

Electricity and water: Act of February 15, 1901 (31 Stat. L., 790).

Edison Electric Company: Act of May 1, 1906 (34 Stat. L., 163).

Historic and scientific monuments: Act of June 8, 1906 (34 Stat. L., 225), sections 3 and 4.

Transfer of forest reserves: Act of February 1, 1905 (33 Stat. L., 628).

Power to regulate: Act of June 4, 1897 (30 Stat. L., 34, 35).

The CHAIRMAN. Has the Department adopted any formal regulations in connection with these statutes?

Mr. PINCHOT. It has adopted formal regulations governing its methods of procedure in all forest-reserve matters, in accordance with the law on the subject.

The CHAIRMAN. Are those records very voluminous in connection with matters of rights of way and privileges?

Mr. PINCHOT. They are not.

The CHAIRMAN. I wish you would insert them as a part of your testimony.

Mr. PINCHOT. I will.

Extract from the Regulations for the use of the National Forest Reserves.

[Issued by the Secretary of Agriculture, July 1, 1906.]

SPECIAL PRIVILEGES.

I. UNDER JURISDICTION OF THE DEPARTMENT OF AGRICULTURE.

REG. 31. The Forester may issue permits for special privileges within forest reserves, with such restriction as to area, time, terms, and surety as he may deem best, and he may, in his discretion, extend, renew, or revoke any such permit.

Applications for all special privileges should be prepared upon Form 832, and each application should cover one privilege only.

If the privilege sought is one that can be granted by supervisors (Regulations 35, 41, and 43), the applicant should sign and submit his application in triplicate; and if the supervisor decides to issue the permit as applied for, he will approve and sign all three, send one to the permittee, retain one in his office, and send the third to the Forester, stamped: "Duplicate, for the information of the Forester." If the signed application, as received by the supervisor, must be modified before being approved, he will prepare three revised copies and return them for signature by the applicant.

If the privilege is to be acted upon by the Forester, one copy of the application will suffice; but before mailing it to the Forester the supervisor should file a card with the proper case designation thereon in his card-record case. The application should be accompanied by report on Form 964, and if any forest-reserve timber located upon the land or right of way applied for will be cut or destroyed in connection with the enjoyment of the privilege, a separate description and estimate of that timber upon Form 578 must also be made. If the application is for a right of way to promote a commercial enterprise, there must also be submitted by the applicant certified evidence of water rights secured under local laws (when the use of water is involved), and field notes and two copies of a map on tracing linen showing the proposed right of way as surveyed, both map and notes bearing the surveyor's certificate. When a privilege is not to promote a commercial enterprise, a sketch map of the land involved, made or approved by a forest officer, is sufficient and should accompany the application.

A commercial enterprise is one entered into with the main object of furnishing its product to the public for a money return. For example, a telephone line constructed for the purpose of charging toll is commercial, but one maintained by a mining company for its own exclusive use is not commercial; or, a flume line to develop electrical power to be sold to the public is commercial, but one maintained by a mining company to develop power for its own use is not commercial.

If the privilege applied for is allowed, the Forester will have prepared an agreement in triplicate, which will be sent to the supervisor, one copy for his files, the other two copies to be forwarded to the applicant for execution. No agreement will be approved by the Forester until duly executed by the applicant, and applicants should be informed that enjoyment of any privilege must be deferred until definite notice from the supervisor. The supervisor should, at the time of sending agreements to applicants for execution, inform them that to avoid delay they may begin enjoyment of the privilege applied for immediately after mailing any required payments to the special fiscal agent and returning to the supervisor the agreement, properly executed in duplicate.

As soon as the applicant executes the agreement in duplicate and returns it to the supervisor, both copies must be mailed at once to the Forester for approval. When the supervisor receives a certificate of deposit from the special fiscal agent (p. 29) in a privilege case in which a charge is made, he will hold it until he also receives the approved agreement from the Forester (or, if such agreement is received first, until the certificate of deposit is received), and mail both to the permittee, the approved agreement to act as a full permit.

PAYMENT FOR SPECIAL PRIVILEGES.

The charge for permits is based principally upon the value of that which is actually furnished to the permittee by the Forest Service, including advantageous location and other indirect benefits, and not directly upon the profits or the magnitude of the business which is to be carried on. Applicants should not send any payments to the special fiscal agent until notified of the approval of their applications.

Whenever a privilege involving a charge is granted by the Forester a prepared copy of Form 861, ready for the signature of the supervisor, will be sent with the agreement; and this must be furnished to the applicant to accompany his remittance to the special fiscal agent (Reg. 7). When Form 861 is prepared in the Forester's office, a duplicate need not be furnished the Forester by the supervisor (p. 29). As a rule full payment in advance for special privileges will be insisted upon; but when great hardship would result the annual payment may in the discretion of the Forester be made in not to exceed three equal installments. After the first payment for a special privilege has been made, the Forester will, one month before any subsequent payment falls due, send to the permittee through the supervisor a notice to make payment.

(Witness: Pinchot.)

DURATION AND REVOCATION OF SPECIAL-PRIVILEGE PERMITS.

Forest supervisors in issuing permits should always make them "terminable at the discretion of the Forester" and not for any definite period. No permits may be revoked by the supervisor, and when the Forester takes such action the supervisor will be notified so that he may make the proper record.

ABANDONMENT AND REVOCATION OF PRIVILEGES.

Whenever a permittee abandons a privilege the supervisor should immediately, after assuring himself of this fact, report it to the Forester and designate the case "closed" on his privilege card record. If an applicant does not execute and return an agreement within a reasonable time, the supervisor should make inquiry, and if he refuses to execute the papers, the supervisor should secure possession of and return them to the Forester with his report in the case.

REG. 32. Occupancy under permit secures no right or claim against the United States, either to the land or to any improvements upon it, beyond the privileges conferred by the permit. Improvements made by the permittee, except fences, may not be removed except with the written consent of the supervisor.

SPECULATIVE APPLICATIONS.

The policy of the Forest Service is to prevent applicants from securing and holding valuable privileges as a speculative venture, awaiting either the development of the country to make the privileges more valuable, or until financial assistance to carry them out can be secured. To avoid this speculative feature applicants must, before permit is issued, make all required payments and agree that any necessary construction work will commence within some definitely stated reasonable time, that the work will be completed within a certain period, and that the privilege will be beneficially enjoyed for at least a certain stated period each year. Such time is to be reckoned from the date of execution of the agreement by the applicant. Forest officers should, therefore, in recommending the time for commencement and completion of privilege projects, take into consideration the physical conditions, such as climate, facilities for transportation, availability of laborers, and materials, etc.

After any permit has been granted, the forest officer should carefully note whether the time limitations for beginning and completing construction and enjoying the privileges are observed by the permittee. They should promptly inform the Forester of any breach of the agreement in these particulars, and unless permittees can show good reason for failure to comply with their agreements the permits will be revoked.

HOTELS, STORES, MILLS, ETC.

REG. 33. Hotels, stores, mills, apiaries, limekilns, residences, and similar establishments will be permitted upon forest-reserve lands whenever the demand is legitimate and consistent with forest-reserve interests.

The use of tracts of not to exceed 2 acres for a school and 1 acre for a church is specifically provided for by law, subject to regulation by the Department and any other disposition of the land by the Government. (Appendix, p. 160.) Timber for the construction of church and school buildings may be secured under the free use regulations. (Reg. 10.)

AGRICULTURAL LAND.

REG. 34. Permits to inclose and cultivate agricultural land within forest reserves may be granted by the Forester subject to the foregoing conditions, except that no single applicant will be permitted to occupy more than 160 acres.

Forest-reserve land chiefly valuable for agriculture held by permit under this regulation may be listed (p. 23) and thus opened to settlement under the act of June 11, 1906 (Appendix, p. 175), but unless the permittee is the preferred applicant under that act, such listing will be temporarily deferred to protect growing crops.

ROADS AND TRAILS.

REG. 35. Wagon roads and trails may be constructed, changed, widened, extended, or repaired upon forest reserve lands when needed, but permit must first be secured. Permits will not give any right to exclusive use, or to charge toll, or against future disposal of the land by the United States.

If an application for road or trail construction involves the cutting or destruction of more than \$100 worth of reserve timber within the right of way, it must be submitted to the Forester for approval; otherwise it may be granted by the supervisor.

REG. 36. The supervisor may, in his discretion, grant during any one year to any road district, county, person, or noncommercial corporation the right to use not more than \$100 worth of timber free for the construction, maintenance, or repair of roads or trails within forest reserves, without prejudice to any free-use application they may make in the same year for material for other purposes.

The regular free-use permit form must be used in granting timber under this regulation.

REG. 37. Applicants for wagon road or trail construction who are not entitled to the free-use privilege must pay, except as provided for in Reg. 30, for all merchantable timber cut or destroyed within the right of way under timber settlement regulations, or if reserve timber outside the right of way is required for construction or repair under timber sale regulations.

REG. 38. A county road established prior to the creation of the reserve may be changed, widened, or repaired by the county authorities without permit if the operations are within the right of way fixed for such roads by the State law.

Any attempt to abuse this privilege, such as the unnecessary use of material or the leaving of dangerous refuse, should be forbidden, and, if necessary, reported to the Forester for instructions.

REG. 39. In serious emergencies supervisors of road districts or others may make any necessary immediate repairs, and for such purpose may take from reserve lands the necessary timber, providing they secure a permit for any timber so used under the provisions of Regs. 36 or 37, as the case may require, at their earliest opportunity.

CANALS, DITCHES, RESERVOIRS, ETC.

REG. 40. Permits for canals, ditches, flumes, pipe lines, tunnels, dams, tanks, and reservoirs, not granting an easement, are under the jurisdiction of the Secretary of Agriculture, and should be applied for to the supervisor on Form 832.

The granting of such rights of way carries with it a right to use only so much land as may be necessary for the enjoyment of the privilege.

REG. 41. If the project is small and of a private and personal character, and there are no complications of title, nor prior and conflicting rights, the supervisor may grant the permit, provided not more than \$100 worth of timber will be cut or destroyed within the right of way. If any large or commercial enterprise is involved, or if there is any question of conflicting rights or jurisdiction, the supervisor must transmit the application to the Forester for approval, together with report and recommendation.

Small projects are such as a reservoir covering not to exceed 10 acres or a ditch, flume, pipe line, canal, or tunnel not to exceed 2 miles in length to supply a few farms, or a tank to collect water for stock.

Permits granted under these regulations are only for the improvements necessary to store or conduct water, and do not carry any right to the water itself, the appropriation of which is subject to Federal, State, or Territorial law.

PRIVATE RAILROADS, TELEPHONE LINES, ETC.

REG. 42. Permits for private railroads and tramroads and telegraph, telephone, and power transmission lines may be granted by the Forester only.

Application must be made to the supervisor on Form 832. Telephone, telegraph, or transmission lines may be constructed with proper local authority within county-road rights of way without permit from the Forester.

WILD HAY.

REG. 43. Wild grass upon forest reserves may be cut for hay under permits issued by supervisors. A reasonable charge per acre may be made, to be fixed by the supervisor under general instructions from the Forester. Applications should be made upon Form 832 to the supervisor, directly or through a ranger, stating the area of the tract desired and the price offered.

Supervisors anticipating business of this kind should report to the Forester and suggest a price per acre for his approval. Under instruction then received they will issue permits, following the general instructions governing special-privilege cases. They

(Witness: Pinchot.)

will not permit cutting until they have assurance that the purchase price has been forwarded to the special fiscal agent.

In issuing permits to cut hay preference should be given those applicants who actually need the hay for their own use rather than to those who contemplate selling it to others.

HISTORIC AND SCIENTIFIC MONUMENTS.

All persons are prohibited from appropriating, excavating, injuring, or destroying any historic or prehistoric ruin or monument, or any object of antiquity situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary, who has jurisdiction over the land involved. The penalty is a fine of not more than \$500 or imprisonment for not more than ninety days, or both. The law provides that the Secretaries of the Interior, Agriculture, and War shall make uniform rules for granting permits when proper for the study, examination, and use of such monuments and antiquities. (Appendix, p. 178.)

Forest officers should report to the Forester the location and description of all objects of great scientific or historic interest which they find upon forest reserves, and should prevent all persons from injuring these objects without permission from the Secretary of Agriculture. After the Secretary of Agriculture has determined any monument or object of historic or prehistoric interest, or after the President has proclaimed "historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest," upon a forest reserve, to be national monuments, forest officers may arrest unpermitted persons who are found appropriating, excavating, injuring, or destroying any such objects. (Appendix, p. 178.)

II. UNDER JURISDICTION OF THE DEPARTMENT OF THE INTERIOR.

REG. 44. Whenever a right of way under the jurisdiction of the Secretary of the Interior is located upon a forest reserve, the Forester may, in his discretion, before making recommendation that it be granted, require the applicant to execute such stipulation and bond as he may deem necessary for the protection of forest reserve interests. (Appendix, p. 195.)

Such stipulations may include clearing right of way; disposal of refuse; payment, under timber-settlement regulations, for all merchantable timber cut or destroyed; necessary precautions against fires by the use of oil as fuel, etc., and any other conditions needed to protect forest reserve interests.

Applications for rights of way under the jurisdiction of the Secretary of the Interior must be filed in the local land office. Forest officers must not receive or transmit applications of this character. All such applications when regularly received at the Interior Department will, however, be referred to the Forest Service for report as to whether granting them will injuriously affect forest reserve interests, and forest officers will make reports upon such applications when directed to do so by the Forester.

MR. SAMUEL. What is the policy and manner of administering forest reserves?

MR. PINCHOT. The controlling idea in the policy is to make the forest reserves permanently useful to the people who live in and near them. We endeavor to make all their resources available for immediate use just as freely as is possible consistent with making them permanent. The vast increase in the use made of the reserves which has taken place in the last two years is, I think, the best argument which I can quote to the effect that we have not been unsuccessful in giving them added value to the people of the West.

MR. SAMUEL. Has any objection to or criticism of the policy of your Bureau ever been made?

MR. PINCHOT. A great deal of objection has been made from time to time. When the first forest reserves were made no one cared or thought much about them. When the Cleveland forest reserves were made, February 22, 1897, the whole West, you may say, was a unit

against the forest policy so executed. Since that time, however, there has been a steady increase in appreciation and support of the policy by the western people, until to-day there is very little opposition among the actual users of the reserves. There will always be a certain amount of opposition on the part of men who are not getting all they would like to have from the public domain, and that opposition we shall never be able to avoid, but the fact that we have been able to steer a fairly exact middle course between the different interests, each of which was demanding uncontrolled use of the public property, is indicated by the fact that very many people get a little less than they want, while the most of the people in general are being well served and are well pleased.

For example, it happens frequently that the men who are using a certain watershed for grazing will protest because we are not allowing sheep enough on that area, while the people who are using the stream from that watershed for irrigation will protest because we are allowing too many sheep.

The CHAIRMAN. Prior to 1905 the forest reserves were administered in the Interior Department?

Mr. PINCHOT. In the General Land Office.

The CHAIRMAN. Your Division of Forestry has been in existence in the Agricultural Department for how many years?

Mr. PINCHOT. It began substantially in 1876.

The CHAIRMAN. It was not until within the last few years that you have had charge of the reserves. Prior to taking charge of the reserves, what was the history of the forest reserve revenue for the Government?

Mr. PINCHOT. The largest revenue ever obtained in any one year from the forest reserves prior to the transfer to the Department of Agriculture was about \$60,000. The revenue during the first whole fiscal year when we had charge was \$767,000.

The CHAIRMAN. You increased the revenues from a maximum of \$60,000 in a fiscal year to \$767,000 in the first full fiscal year of which you had charge of the reserves?

Mr. PINCHOT. That is it, exactly.

The CHAIRMAN. It was a net increase of about \$700,000?

Mr. PINCHOT. Yes.

The CHAIRMAN. Something has been said about the lack of organization in your particular bureau. I would like to inquire whether you were a member of the Keep Committee?

Mr. PINCHOT. I was and am.

The CHAIRMAN. Has the Keep Committee at any time examined any of the bureaus of the Government with reference to ascertaining the character of their organization, their efficiency as a working organization, and capacity to produce results?

Mr. PINCHOT. It has; very many of them.

The CHAIRMAN. Has it examined yours?

Mr. PINCHOT. It has.

The CHAIRMAN. Can you give me the name of some members of the Committee of whom we can inquire as to the results obtained in the case of your own Bureau?

Mr. PINCHOT. The only members of the Committee who are available now, Mr. Keep having left the city, are Mr. Garfield and Mr.

(Witnesses: Pinchot, Garfield.)

Murray, either of whom I should be very glad to have you question in regard to that matter.

The CHAIRMAN. How many bureaus did they examine for the purpose of ascertaining the condition of organization and effectiveness in connection with the work?

Mr. PINCHOT. I can not give you the exact number, but a considerable number in the different Departments.

The CHAIRMAN. Were the conclusions that the Committee reached upon that question unanimous?

Mr. PINCHOT. They were, so far as I know.

STATEMENT OF HON. JAMES R. GARFIELD, COMMISSIONER OF CORPORATIONS, DEPARTMENT OF COMMERCE AND LABOR.

Mr. Garfield was sworn by the chairman.

The CHAIRMAN. Were and are you a member of the Keep Committee?

Mr. GARFIELD. I was and am.

The CHAIRMAN. As such, did the Committee have occasion to examine various bureaus in the various Departments of the Government with reference to the efficiency and propriety of their organization as business institutions?

Mr. GARFIELD. It did.

The CHAIRMAN. Did the Committee examine the Forest Service in the Department of Agriculture?

Mr. GARFIELD. It did.

The CHAIRMAN. Will you be kind enough to state what they found with reference to its organization and its efficiency as a bureau?

Mr. GARFIELD. As a member of the Committee, I personally went through the Forest Service and examined the various divisions, the methods of accounting, the methods of bookkeeping, the method of safeguarding the supplies and the issue of supplies, the system of handling correspondence and vouchers, the system of filing, the methods in vogue for attending to the work of the aforesaid Service so far as the records of the office were concerned—that is, the reports of the agents in the field, the officers in charge of the forest reserves, and the officers who were the general inspectors in the different districts—examining the reports sent in by these officers, and following through the actions by the Forest Service upon those reports or recommendations. The general result of this investigation was that the Committee unanimously agreed that the general system in force in the Forest Service was one of the most complete and most satisfactory of any of the offices which were examined by the Committee.

The CHAIRMAN. In any of the Departments?

Mr. GARFIELD. In any of the Departments.

In matters of personnel, the system of, first, the arrangement of salaries, the classes and grades of employees, and the methods of promotion seems to afford the opportunity for the selection of the most efficient employees and the weeding out of the inefficient employees. We examined in detail the records of the various employees and the suggestions made by subordinate officers to their superior officers in many matters connected with administration of the personnel question. There had been in the Forest Service a remark-

able movement in the personnel matters. I mean that it was evident from the records that employees were reduced or dropped if they were found inefficient, and the deserving employees, as shown by their records, had been promoted when opportunity afforded and when it was for the best interest of the Service. The organization of the field service was at that time undergoing revision. There were some suggestions made by the Committee regarding this reorganization which, I understand, were thereafter adopted.

The CHAIRMAN. Were they radical in their character?

Mr. GARFIELD. They were not radical, simply an amplification of the system then in vogue, namely, it is made possible for the Chief Forester to keep in constant touch with the work in the field, and by interchange of work, that of bringing men from the field into the office and sending the office men into the field, it gave the Forester and his first assistant an opportunity at all times to know what really was happening among the rangers on the reserves. We found, further, that in the force of rangers that were transferred from the Interior Department a number of important changes has been made. It was evident that when the service was transferred to this Bureau quite a large number of inefficient men were on the list, men who had been appointed not because of any peculiar adaptability to the work or qualification therefor.

The CHAIRMAN. When it came from the Interior Department?

Mr. GARFIELD. Yes. Many of those men had been dropped, and the Committee was given to understand that as rapidly as any of the men were found inefficient they would be dropped and competent men put in their places.

We further examined the method used by the Bureau for obtaining efficient men through the civil service and through other investigations made by the Chief of the Forest Service or his subordinates. And we were convinced that the character of information sought to be obtained was such as would disclose the qualifications of the applicants for the special work to which they were to be assigned.

In other words, the inquiries were not of a character that were simply academic, but sought in each instance to develop the qualifications of those men who were to be sent into the field as inspectors or rangers.

As to the method of handling accounts, we found that there had been a material reduction in the ordinary amount of what is called "paper" work in the handling of vouchers and accounts and in the statement thereof.

The CHAIRMAN. That is, the elimination of duplication?

Mr. GARFIELD. Yes. That by the bringing together in the hands of one officer whose name is Adams, the special fiscal agent, there had been a great saving both in time and expense in the handling and settlement of accounts. And that by bringing together the accounting divisions of the office the Chief Forester was able to check up in a most satisfactory manner the payments of the Service for the use of forest reserves. The one point the Committee especially examined because it had to do with the question of accounting for receipts of public money, one of the points which in many offices we found open to great criticism.

The system then in vogue in the Forest Service was not as complete as it has since been made; but after the transfer of the work from the Interior Department to the Forest Service the matter had been immediately taken up, and the system which the Committee found in vogue was very much better than we found elsewhere, and afforded a means for very careful checking of the funds as they were received, avoiding in a great measure the possibility of misuse or misappropriation or loss of funds before they reached the Treasury Department.

The CHAIRMAN. Did you reach any conclusion as to the compensation paid to the personnel in the Forest Service as compared with other bureaus and other Departments?

Mr. GARFIELD. By reason of the fact that lump-sum appropriations were in use in the Forest Service there had been afforded the opportunity for an adjustment of salaries which the Committee found admirable and very much better adapted to the Government work than the ordinary statutory roll, for the reason that it afforded a greater opportunity for the advance of deserving employees by small additional compensation while the work remained the same, and for a larger advance when there was a change of work. The apparent result of the system in vogue was that compensation to officers in that Service was better graded in accordance with the quality of the work and the character of the work than in any of the other offices that we examined which had been as long established as the Forest Service. The amounts paid in the lower grades were much less than those paid in other offices where they had statutory rolls. As I recall it now, they range from \$120 to \$240 less than the lowest grade in other branches of the public service.

The CHAIRMAN. About what per cent would that be approximately?

Mr. GARFIELD. That would be about 25 per cent—from 20 to 25 per cent less than in offices where statutory rolls are in vogue in other Bureaus.

The CHAIRMAN. Is it your judgment that the Government is getting as much value received from that method of compensation as it is obtaining in the other Departments?

Mr. GARFIELD. I think they are getting a greater value received, because it affords the opportunity for paying for the work what it is worth and not an arbitrary sum which would be more than could be obtained by the same person for similar work in outside service.

The CHAIRMAN. Do you think that they have a better morale under those conditions than under a statutory roll?

Mr. GARFIELD. So far as we were able to determine. Of course we could not go very deep into that question. But the impression left in the minds of the Committee was most favorable.

The CHAIRMAN. The Committee must have spent some time examining the Forest Service?

Mr. GARFIELD. We were there about two weeks altogether.

The CHAIRMAN. In the one Bureau?

Mr. GARFIELD. In that one Bureau. We took that with three or four other bureaus as samples in the first instance—some bureaus where the statutory roll was in vogue, and this Bureau, where the lump-sum appropriation was in vogue.

The CHAIRMAN. What is your judgment as to the lump-sum method?

Mr. GARFIELD. I think it is very much the more satisfactory method of appropriation. It of course requires a very much greater degree of inspection and care on the part of the head of the bureau, but with that inspection and care a man can accomplish very much more work with the same amount of money and get very much better results from the clerks under that system.

The CHAIRMAN. Did you see any indications of that kind of inspection and care in the Forest Service?

Mr. GARFIELD. I did. The lump sum affords the opportunity for giving to the man who develops special qualifications a compensation greater than that which could be obtained under the statutory roll; in other words, it permits a man, as in a private business, to differentiate between individuals, and it is an added incentive to men in the Bureau to go to higher places than under the other system. And by a system of inspection the constant interchange of men between the office and the outside service secures every man doing his best, because there would be a downward movement as well as an upward one.

The CHAIRMAN. That involves promotion on the basis of efficiency records?

Mr. GARFIELD. It does.

The CHAIRMAN. Should not those records be open to the inspection of the men affected by the records?

Mr. GARFIELD. I think so. The question of efficiency records is an exceedingly difficult one. I believe that the personal knowledge of the head of a division, where he must know his employees personally well and be well acquainted with their work, is of much more value in determining the relative efficiency of the men under him than any system of card records or individual entry. Where there may be a card record or individual entry, in making up the cards each day and each week and month, it very soon becomes a mere matter of form; and I found in a number of offices where that system of efficiency records was kept it very soon developed that in carrying it out the man at the head of the division would arrange the clerks under him in 1, 2, 3 order and then would assign to them ratings of two-tenths difference, or five-tenths, or whatever it might be, showing that the real basis was the man's individual opinion as to what that clerk's services were worth in relation to other clerks. There are some classes of work where you can not have an absolutely efficient card rating. If the work is such as counting money orders or something of that kind, where the amount of work done is the only basis—

The CHAIRMAN. Is easily ascertainable?

Mr. GARFIELD. Yes. But where you have work involving very different kind of work from that, and especially where the question of judgment or the exercise of discretion enters into it, then the ordinary efficiency ratings amount to very little. And I believe that the best system is that which throws upon the head of the division the full responsibility for personal knowledge of the clerks under him; making him report to the head of the Bureau, and holding him re-

(Witness: Garfield.)

sponsible for the opinion that he gives as to the qualifications of those different clerks when the time comes for either reducing or promoting anyone.

The CHAIRMAN. But where the conditions are such that you can combine with that an efficiency record, it ought to be done?

Mr. GARFIELD. It ought to be, without doubt.

The CHAIRMAN. I suppose the objection to the lump-fund method of providing for salaries is its liability to abuse by the men having the charge of the disposal of the fund?

Mr. GARFIELD. Without doubt.

The CHAIRMAN. And if you could have some reasonable restrictions which would regulate and control the disposition of the fund, it might largely eliminate that factor? Is it your judgment that that would be the most desirable method of providing for the salaries of the personnel?

Mr. GARFIELD. I think it is. I have found it so in my own Bureau; that is the Bureau of Corporations.

The CHAIRMAN. If you had a regulation that a salary should not exceed a certain sum and some restriction as to the number in some of the largest amounts, and then simply appropriated a specific sum to be used, and then, as a basis of it all, if you had a cost-keeping method showing the actual units of result that must be accomplished for the amount expended, would you not have a lump-sum fund surrounded by safeguards and requirements reasonable and perfectly adequate to take care of any abuse of authority?

Mr. GARFIELD. I believe you would if you coupled with what you have stated a scheme for the division of salaries such as was presented to the committee on departmental methods, and if you would then give to the head of the bureau a lump sum, and he should then be obliged to arrange the salaries in connection with that general plan. First, qualifications and character of the work, and then with those general divisions of the character of the work, making the promotions \$50 or \$60 at a time, rather than a \$120, and then strict accountability, and the requirement on the part of the head of the Department that at the end of each month he should have a complete report before him from every bureau chief as to exactly how that money is being spent, what it is costing him to run his bureau, what his estimates of the liabilities are for the balance of the fiscal year, and a succinct and yet complete statement of his personal roll, you would have a scheme that would work out perfectly.

The CHAIRMAN. But as a basis of that you would want the cost-keeping proposition?

Mr. GARFIELD. Without doubt.

The CHAIRMAN. So that you would get the units of result?

Mr. GARFIELD. Yes.

The CHAIRMAN. And with that as a basis you could test every bureau?

Mr. GARFIELD. Yes.

The CHAIRMAN. With the result to be produced for certain dollars of expenditure?

Mr. GARFIELD. Yes. We found conditions of that character in the Forest Service. Up until that time there had been the general

(Witnesses: Garfield, Pinchot.)

supposition that cost-keeping could only be successfully applied to those bureaus or departments that engaged in manufacturing. That is not true. Cost-keeping can be applied equally well to clerical work, and the system of the Forest Service was at that time being worked out for the determination gradually of the cost of the service, both outside and inside.

Mr. PINCHOT. I got that from him.

The CHAIRMAN. If I understand you correctly, the very much larger percentage of the Government service is of such a uniform character that you can apply to it a cost method?

Mr. GARFIELD. You can, without a doubt.

The CHAIRMAN. And get uniform results by which you can measure the work accomplished by the various bureaus?

Mr. GARFIELD. It can be done, and at a very, very moderate cost.

The CHAIRMAN. With that done, it would be the easiest thing in the world to determine whether or not the money appropriated for a bureau was being wisely and judiciously expended?

Mr. GARFIELD. Perfectly. In the Bureau of Corporations I know exactly how much it costs to install every new clerk—that is, the furniture and stationery; I know how much stationery the entire force uses, how much it takes for each clerk each year, how much it costs to send men into the field, the percentage of outside cost—that is, the per diem and traveling—and the salary, so that if I have an investigation to make I can determine very closely how much it is going to cost to make that investigation, and I can at the same time measure up the value of the results by this system of cost keeping; and with the Bureau of Corporations, if I may for a moment simply cite that as an example, one clerk carries on that work without the slightest difficulty, in connection with the time keeping, and the voucher records and the accounting portion of the Bureau of Corporations are taken care of by this one clerk, who at the same time conducts the system of cost keeping; so that we know how many pens and how many tablets and how many of everything of that kind is used each month, and that of course results in a very great prevention of waste, because every man knows that he is not scrimped in anything that he needs, that he can have everything that he needs, but he has got to account for it; and it prevents misuse and waste of public supplies.

The CHAIRMAN. Under that system when you get a certain number of units of result, if you find that the cost incurred is larger than it should be, that enables you to ascertain exactly where the difficulty is?

Mr. GARFIELD. Yes.

The CHAIRMAN. And turn to it and correct it?

Mr. GARFIELD. Yes; because you have all the elements.

The CHAIRMAN. You can put your hand right on the place where the deficiency occurs that needs correction?

Mr. GARFIELD. Yes.

The CHAIRMAN. If you have an inefficient man, that discloses it?

Mr. GARFIELD. It discloses it instantly. And in regard to the Forest Service we found that same method of handling their business was being installed there and had been in great measure carried

(Witness: Garfield.)

on there before. At the end of each month, by a system of accounting which was exceedingly simple and had been worked out on the very best of accurate and loose-leaf ledger methods, the Forester was able to tell exactly what his general balance was, all the moneys received, all the moneys expended, all the outstanding liabilities, and the allotments made to carry on the various characters of work in the different reserves; and there were shown on this balance sheet not only the expenditures that had been made, but those that had been authorized, and the totals of the appropriations, so that at the end of each month the Forester was able to tell whether or not his orders had been carried out and his subordinates were keeping within the allotments and that the total was within the appropriations made by Congress for the work.

The CHAIRMAN. It would be impossible to have a deficiency of any consequence if all the Departments of the Government were conducted on that plan?

Mr. GARFIELD. Absolutely impossible. It would only be in cases—

The CHAIRMAN. It would only be possible in case of something absolutely unforeseen?

Mr. GARFIELD. Yes.

The CHAIRMAN. I mean in the ordinary course of business it would be almost impossible to create a deficiency if that system were followed?

Mr. GARFIELD. Yes.

The CHAIRMAN. State what you found with reference to the relative efficiency of the Forest Service as a whole as compared with other bureaus that you examined.

Mr. GARFIELD. The committee were unanimous in the belief that the efficiency in that service was so much greater than we found in the other offices that we used many of the methods we found in vogue there as a basis for recommendations for changes in other branches of the Government service, believing that if they were put in vogue generally throughout the service there would be an enormous increase in efficiency in the other offices where they were adopted.

The CHAIRMAN. You say you stayed about two weeks there. Did you do that work personally, or were the whole Committee there for the two weeks?

Mr. GARFIELD. When I say two weeks, I mean—

The CHAIRMAN. Your investigation extended over that time, you mean?

Mr. GARFIELD. Yes; we would spend one, two, or three hours a day, as the case might be, and the members of that committee went personally through every division of the office, and all the files in the office. I personally went over these records in detail, and the office accounts in detail. I called for various cases to see what the conditions of the files were. I called for letters on subjects that I knew nothing of except in a general way, connected with forestry, and the files would be handed to me and I would look through the files in these special cases to see what condition they were in, and see whether the system as adopted actually worked out.

The CHAIRMAN. To see if it gave concrete results?

Mr. GARFIELD. Yes, sir; to see if it gave concrete results. I found that it did.

The CHAIRMAN. All five of the members of the Committee were engaged in this matter of which you speak?

Mr. GARFIELD. Yes, sir.

The CHAIRMAN. They are all men who are connected with the public service, and have duties of their own to discharge?

Mr. GARFIELD. Yes.

The CHAIRMAN. But so far as was consistent with the discharge of their own duties, they were devoting their time during two weeks to the examination of that Bureau?

Mr. GARFIELD. Yes, sir. I may be mistaken about the time, but I think it was about that time.

The CHAIRMAN. You had acting under you—that is, the Keep Committee—quite a considerable list of committees which it had appointed?

Mr. GARFIELD. I think about 70 men from the public service were taken in and divided into committees.

The CHAIRMAN. The Committee has been in existence since June, 1905, and during that period of time, with these 70 men, so far as it has been compatible with the discharge of their duties, have been devoting their attention to the investigation of all these questions connected with the public service?

Mr. GARFIELD. Yes.

The CHAIRMAN. And as the result quite a number of elaborate reports have been made to the President of the United States?

Mr. GARFIELD. Yes, sir.

The CHAIRMAN. Bearing upon the condition of the service as found, containing recommendations made by the Committee?

Mr. GARFIELD. Yes.

The CHAIRMAN. And all of this work that has been done by the Keep Committee and these 70 men who have been associated with it has been done without any additional expense to the Government?

Mr. GARFIELD. Absolutely none. There was an appropriation of \$5,000 which was used to pay the traveling expenses of some representatives from the National Society of Accountants, who have given their services for the purpose of examining reports on cost-keeping and accounting; and the only expenditure has been the payment of their traveling expenses, and I think one other item of expenditure was the employment of an actuarial accountant to make a report to us on the question of salaries.

Mr. PINCHOT. Salaries and retirement.

Mr. GARFIELD. Yes; salaries and retirement. But there has been no compensation paid to any members of the Committee or to the members of the committees acting under it.

The CHAIRMAN. And I suppose a great deal of this work that was done by them has been done out of hours?

Mr. GARFIELD. Out of hours. In fact, necessarily most of it has been done out of hours. No; I should not say that. A great deal of it has been done out of hours.

Mr. PINCHOT. Yes; a great deal of it has been done out of hours.

(Witnesses: Garfield, Pinchot.)

The CHAIRMAN. It has resulted up to date in something like twelve or thirteen elaborate reports to the President?

Mr. GARFIELD. Yes; but there are a great many other reports which have been sent in by the subcommittees and on which the committee of five has taken personal action or is now considering. Most of the reports which have been made to the Committee have been made use of in the reports made to the President, and have resulted in a great many changes and modifications and improvements of the public service.

The CHAIRMAN. You are not as yet able to make any definite statement as to the saving that will result to the Government from the adoption of the recommendation of the Committee with reference to the purchase of supplies?

Mr. GARFIELD. No; not yet.

The CHAIRMAN. They found most extraordinary conditions existing in that respect, I believe?

Mr. GARFIELD. Yes; they did, indeed.

The CHAIRMAN. I believe that covers everything.

(At 3.50 o'clock p. m. the committee adjourned.)

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
February 20, 1907.

The committee met at 10 o'clock a. m.

Present, Messrs. Littlefield (chairman) and Samuel.

STATEMENT OF GIFFORD PINCHOT, ESQ., CHIEF OF THE FOREST SERVICE, DEPARTMENT OF AGRICULTURE—Continued.

The CHAIRMAN. I find from an examination of the Congressional Record of yesterday that the seventeen questions submitted to me by Senator Heyburn, all of which were propounded by me to you on February 16, 1907, do not appear to have covered all the criticisms that have been made of your Service, and I have not therefore been able, until I had the Record in my possession this morning, to examine you in relation to the matters therein referred to. In the light of the additional criticisms made by Senator Heyburn yesterday, I would be glad to have you state exactly what would be the effect upon the work of the Forest Service if the Senate amendment reducing its available fund for the fiscal year 1907-8 to \$900,000 and the special fund to \$500,000 is adopted. Will you be kind enough to make your reply full, stating your present rate of expenditure, both for the care of the forest reserves and maintenance of other lines of forest work, as well as the authority that you have therefor?

Mr. PINCHOT. I will submit here a statement of receipts and expenditures for the forest work of the Government for the last three years.

(Witness: Pinchot.)

Table to show deficit for Forest Service for year ending 1908, comparing estimates for necessary expenditures for that year with appropriations proposed by Senate amendments this date (February 19, 1907.)

1905. Appropriation, Bureau of Forestry (Agriculture).....	\$425, 140. 00	
Appropriation, Division of Forestry (Interior)	375, 000. 00	
Receipts, special fund, February 1 to June 30, 1905	60, 142. 62	
	<hr/>	
Total for Forest Service, 1905.....	\$860, 282. 62	
Spent by Forest Service, 1905.....	800, 140. 00	
	<hr/>	
Residue, special fund, June 30, 1905.....		\$60, 142. 62
1906. Appropriation, Forest Service		875, 140. 00
Receipts, special fund, 1906	\$767, 219. 96	
Less 10 per cent to States.....	76, 722. 00	
	<hr/>	
Available from receipts, 1906.....	690, 497. 96	
Residue, special fund, June 30, 1905.....	60, 142. 62	
	<hr/>	
Total for Forest Service, 1906.....	1, 625, 780. 58	
Spent by Forest Service, 1906.....	1, 195, 229. 81	
	<hr/>	
Residue, special fund, June 30, 1906		430, 550. 74
1907. Appropriation, Forest Service.....	1, 000, 000. 00	
Receipts, 1907 (estimated)	1, 250, 030. 00	
Less 10 per cent	125, 000. 00	
	<hr/>	
Available from receipts, 1907.....	1, 125, 000. 00	
Residue, special fund, June 30, 1906.....	430, 550. 74	
	<hr/>	
Total for Forest Service, 1907.....	2, 555, 550. 74	
Spent, 1907 (estimated and authorized by Secretary of Agriculture)....	1, 955, 710. 82	
	<hr/>	
Residue, special fund, June 30, 1907 (estimated).....		599, 839. 92
1908. Appropriation, Forest Service (expenses and salaries).....	\$900, 000. 00	
Residue, special fund, June 30, 1907 (estimated)	599, 839. 92	
	<hr/>	
Total for Forest Service, 1908.....	1, 499, 839. 92	
Expenses, Forest Service, 1908 (estimated)	2, 500, 000. 00	
	<hr/>	
Deficit, Forest Service, 1908		1, 000, 160. 08

NOTE.—\$500,000 of the proposed appropriation was intended by both House and Senate as working capital to construct permanent improvements.

This statement shows that in the fiscal year 1905 the total appropriation for forest work was \$375,000 under the General Land Office, and \$425,000 under the Bureau of Forestry, a total of \$800,000. In the fiscal year 1906 it was \$875,000; and for the present fiscal year the appropriation is \$1,000,000. For next year only \$900,000 is asked, plus what the Forest Service earns.

The expenses for the last fiscal year were \$1,195,000, while for the present fiscal year they are estimated at \$1,955,000. The increase during that time in the area to be cared for was from 58,000,000 acres to 127,000,000 acres, accompanied by an increase in expenditures of from \$800,000 to \$1,955,000. In other words, the increase in area was greater than the increase in expense, while the increase in work done, in the number of men employed, and in the use of the reserves by the people of the West was very much greater still. The increase in expense represents directly the increase in usefulness to the people of the West. The more the reserves are used, the greater the cost of administration. The more timber is cut and used, the greater the cost of protecting the forest. But the doubled area and more than double use and work will cost the Government next year but \$100,000 more than half the area and less than half the work three years before, because of the increased returns.

Now, if the Hemenway amendment should pass, the Forest Service would be left with \$900,000 appropriated, plus \$600,000 estimated

(Witness: Pinchot.)

balance in the special fund at the end of the year, or \$1,500,000 to meet an estimated expenditure of \$2,500,000, as shown by the table of estimated receipts and expenditures, which I will insert here.

Estimate of receipts and administrative expenditures, 1907 to 1917.

Fiscal year.	Receipts from forest reserves.		Total receipts from reserves.	Total from appropriations.	Total from all sources.
	Timber sales.	Grazing.			
1906.....	\$252,527.09	\$514,692.87	\$767,219.96	\$875,000.00	\$1,542,219.96
1907.....	550,000.00	700,000.00	1,250,000.00	1,000,000.00	2,250,000.00
1908.....	900,000.00	800,000.00	1,700,000.00	900,000.00	2,600,000.00
1909.....	1,500,000.00	900,000.00	2,400,000.00	700,000.00	3,100,000.00
1910.....	2,000,000.00	1,000,000.00	3,000,000.00	400,000.00	3,400,000.00
1911.....	2,500,000.00	1,100,000.00	3,600,000.00	.....	3,600,000.00
1912.....	2,800,000.00	1,200,000.00	4,000,000.00	.....	4,000,000.00
1913.....	3,100,000.00	1,300,000.00	4,400,000.00	.....	4,400,000.00
1914.....	3,400,000.00	1,400,000.00	4,800,000.00	.....	4,800,000.00
1915.....	3,700,000.00	1,500,000.00	5,200,000.00	.....	5,200,000.00
1916.....	4,100,000.00	1,500,000.00	5,600,000.00	.....	5,600,000.00
1917.....	4,500,000.00	1,500,000.00	6,000,000.00	.....	6,000,000.00

Fiscal year.	Administrative expenditures.		
	Paid from receipts.	Paid from appropriation.	Total.
1906.....	\$319,143.87	\$875,140.00	\$1,194,283.87
1907.....	900,000.00	1,000,000.00	1,900,000.00
1908.....	1,600,000.00	900,000.00	2,500,000.00
1909.....	2,200,000.00	700,000.00	2,900,000.00
1910.....	2,800,000.00	400,000.00	3,200,000.00
1911.....	3,500,000.00	.....	3,500,000.00
1912.....	3,800,000.00	.....	3,800,000.00
1913.....	4,100,000.00	.....	4,100,000.00
1914.....	4,300,000.00	.....	4,300,000.00
1915.....	4,500,000.00	.....	4,500,000.00
1916.....	4,700,000.00	.....	4,700,000.00
1917.....	4,900,000.00	.....	4,900,000.00

The \$500,000 proposed to be given for working capital is not intended to be applied to running expenses, nor will we have anything left of the present available balance of \$313,000 in the Treasury or of the other receipts which may come in before the end of the fiscal year, excepting the \$600,000 just mentioned. Under the Hemenway amendment we would begin the year with \$600,000 earned and appropriated, plus the appropriation of \$900,000 for running expenses; in other words, we should have \$1,500,000 to do \$2,500,000 worth of work, which is the very smallest sum for which the interests dependent upon the reserves can be reasonably protected.

The CHAIRMAN. To take care of that amount of expense?

Mr. PINCHOT. The effect would be to cripple the Service nearly one-half in caring for the national forests, in protecting them against fire, and in making them useful to the people of the West. The chief sufferers from such a reduction would be the western people.

The authority under which the Forest Service acts in collecting and disbursing money is found in the acts of June 4, 1897, February 1, 1905, and the agricultural appropriation bills for the fiscal years 1906 and 1907.

The CHAIRMAN. In the discussion in the Senate it has been stated that the Forest Service is imperiling the forests by permitting unrestricted grazing in them. What is the fact with reference to that;

and are any steps being taken to avoid the destruction of young trees by stock?

Mr. PINCHOT. The fact is that before the creation of the reserves stock was pastured without restriction on these mountains. Now, on the contrary, the grazing is very carefully supervised and controlled, and stock is excluded entirely from areas under reproduction; that is, when we make a cutting of timber, we exclude stock from that area in order to give the young trees a chance to come up and take the place of those removed. The effect of controlled grazing is not harmful to the forests, while the effect of uncontrolled grazing is excessively destructive. If we were to prevent all grazing in the western forests the result would be to ruin the western live-stock industry, because, as I have explained before, the forest reserves include the summer ranges, without which the winter ranges are of no value.

The CHAIRMAN. Senator Heyburn stated yesterday that a man must get a permit before he can enter a forest reserve to reach his own property. What is the law and the practice with reference to that?

Mr. PINCHOT. The Senator is entirely mistaken. The law specifically provides that the forest reserves shall be open to all persons for all lawful purposes. I notice that he says in his statement also that no person is allowed to cross a forest reserve on a State road without a permit. In this also he is wholly mistaken. What he probably has reference to is that where a man proposes to take a considerable number of stock across forest-reserve land to a piece of land which he owns within the reserve and graze them on the reserve in transit, the forest regulations require him to get a crossing permit; but if he proposes to cross along a public road no permit is required, and he is never delayed in crossing. Cases are on record in which, before such crossing permits were required, men have traveled across forest-reserve land with bands of sheep at the rate of less than a mile a day, under the pretense of getting to their own property, thus grazing nearly the whole summer on forest-reserve land under a pretense of getting back and forth to a small pasture which they owned and which in itself was entirely insufficient to support the amount of stock they were running.

The CHAIRMAN. And under those circumstances entirely exhausting the grazing in the reserves along their route before reaching their own territory?

Mr. PINCHOT. Precisely.

The CHAIRMAN. And that process, as I understand you, you do not propose to allow to continue?

Mr. PINCHOT. We do not.

The CHAIRMAN. I hope not. Senator Heyburn stated yesterday that the Government is selling timber and collecting grazing fees from State lands in Idaho. What is the fact in that respect?

Mr. PINCHOT. Again the Senator is entirely mistaken. Both the law and all the decisions are to the effect that it is only when the land was surveyed before the creation of a reserve that the title of school lands passes to the State, but if the reserve is created before the survey the State may, in its discretion, either wait till the reserve is abolished, or it may select indemnity or lieu lands. The Forest Service must be governed by these decisions and is necessarily acting

(Witness: Pinchot.)

under them. As to the surveyed lands which belong to the State, we have sold no timber from them nor collected fees for grazing upon them, nor prevented the State from using the land as it deems best.

The CHAIRMAN. Has any complaint ever been made to your Service that acts of that sort have been done?

Mr. PINCHOT. None that I know of, excepting complaints by Senator Heyburn similar to the ones quoted.

The CHAIRMAN. When were such complaints made by him?

Mr. PINCHOT. They have been made repeatedly during the last few years.

The CHAIRMAN. Have they been investigated?

Mr. PINCHOT. They have been repeatedly investigated and the actual state of facts made public.

The CHAIRMAN. And communicated to Senator Heyburn?

Mr. PINCHOT. And communicated to Senator Heyburn. But I will add, as to the State lands in Idaho, that the Forest Service is in complete accord with the State government under Governor Gooding; and we have begun negotiations for the closest cooperation between the State and Federal governments in the handling of such forest lands.

The CHAIRMAN. In case of the complaints to which you have referred, have the results of the investigations with respect to those complaints been communicated to the parties making them?

Mr. PINCHOT. Yes.

The CHAIRMAN. And wherever the Senator has called attention to complaints of that character the information that you have secured in regard to them has been transmitted to him?

Mr. PINCHOT. Yes; repeatedly so.

The CHAIRMAN. Has anyone ever criticised the statement of facts made by the Department in treating such complaints?

Mr. PINCHOT. Senator Heyburn maintains a different interpretation of the law from the Department of the Interior.

The CHAIRMAN. That is, the Senator's position is that the construction placed upon the law by the Interior Department is not sound?

Mr. PINCHOT. Precisely.

The CHAIRMAN. What way is there of reaching a review of the decisions of the Interior Department, if any?

Mr. PINCHOT. That is a matter between Senator Heyburn and the Interior Department. I presume that any statement which he chose to submit to the Interior Department would be given respectful attention. Until the Interior Department changes its rulings, the Forest Service is bound by it.

The CHAIRMAN. Is this construction of the law a matter which is within the exclusive discretion of the Secretary of the Interior?

Mr. PINCHOT. It is under the transfer act of February 1, 1905.

The CHAIRMAN. That is, the decision of the Secretary of the Interior is administrative and executive in character, and from it there is no appeal?

Mr. PINCHOT. There is not to my knowledge, although the State could of course proceed in the State courts against any person using alleged State lands under permit from the Forest Service.

The CHAIRMAN. Has any complaint ever been made that your

Service exceeded its authority within the scope as thus construed by the Secretary of the Interior?

Mr. PINCHOT. Not to my knowledge, except in a single case due to a misunderstanding.

The CHAIRMAN. Complaint is made about the attendance of a number of employees of the Forest Service at a convention at Boise when the National Irrigation Congress was held there. How did they happen to be in attendance, if you know; and for what purpose?

Mr. PINCHOT. They were called together by me in accordance with a well-defined and most fruitful policy of the Service. When I am in the West I make it a practice to call forest officers together from time to time, and especially at meetings of this sort, for two purposes: First, to hold a sort of school of administration with them, as I did for four or five days constantly at Boise, to make sure that they know how to protect local and public interests rightly; second, to bring them into contact with the users of the reserves who are present at such meetings as that held at Boise, there being in attendance large numbers of men whose interests are affected by forest reserves, who bring complaints and suggestions to whatever forest officers are present. It is very important to have there as many as possible of the officers in charge of the forest reserves to which these complaints and suggestions apply, to have them corrected, if well founded. Furthermore, the discussion of problems between the officers themselves is of great value. I do not believe there is any method employed by the Service which has been more useful in promoting efficiency, eliminating delays, and giving good service than this of holding occasional meetings between the various officers for the discussion of problems which affect them.

The CHAIRMAN. So that these meetings have been frequently held by you for educational purposes?

Mr. PINCHOT. They are held by me several times each year for educational purposes.

The CHAIRMAN. Are the expenses of the men paid for attending meetings of this sort?

Mr. PINCHOT. They are, as they should be.

The CHAIRMAN. When meetings of citizens in those localities are held for discussing those general questions are you glad to have your men there for the purpose of getting suggestions from them from a practical point of view?

Mr. PINCHOT. I make it a practice to get as many forest officers as possible at these meetings in order to straighten out misunderstandings, receive suggestions, and adjust differences.

The CHAIRMAN. Senator Heyburn seems to feel that these employees of your Department were brought to that meeting for the purpose of interrupting its proceedings in case he had occasion to express his views there. Was there any purpose of that sort involved in having your employees attend?

Mr. PINCHOT. Of course, there was absolutely none.

The CHAIRMAN. Has that phase of the matter ever been called to your attention before?

Mr. PINCHOT. Never.

The CHAIRMAN. Would you, under any circumstances, approve of any such conduct on the part of any employees of your Service?

(Witness: Pinchot.)

Mr. PINCHOT. Most decidedly not; nor has anything of the kind ever occurred, to my knowledge. I was present at the meeting at Boise, at which Senator Heyburn made his attack upon the Forest Service.

The CHAIRMAN. This meeting to which he referred?

Mr. PINCHOT. Yes. There were, perhaps, 1,500 people in the hall, and perhaps 15 members of the Forest Service. It is obvious on its face that even if I had attempted to control the sentiment of the meeting through those 15 men, it would have been impossible to do so.

The CHAIRMAN. Was there any effort made to do so?

Mr. PINCHOT. None whatever.

The CHAIRMAN. Would you tolerate on the part of any of your subordinates the gathering together of any employees, under any circumstances, for the purpose of treating with discourtesy any public man or of interfering with the proceedings of any meeting of that sort?

Mr. PINCHOT. I would immediately discharge any employee of the Forest Service who did such a thing.

The CHAIRMAN. If it can be shown that any employee was guilty of conduct of that character, under those circumstances, as I understand it, you would promptly discharge him from the Service?

Mr. PINCHOT. I would. Being present at the meeting myself, however, on the platform, and carefully observing all of the proceedings, I know that no such breach of courtesy took place.

The CHAIRMAN. Did anybody at that time or since complain to you about anything of that sort?

Mr. PINCHOT. No such suggestion has ever been made, to my knowledge, until that of Senator Heyburn yesterday.

The CHAIRMAN. Were you in frequent communication with Senator Heyburn at the time?

Mr. PINCHOT. I was.

The CHAIRMAN. Both before and after his speech?

Mr. PINCHOT. I was.

The CHAIRMAN. I would like to inquire whether or not you do not, at all times, as I think you ought, invite criticisms of any kind from men who have practical knowledge of the lumber industry and the preservation of forests?

Mr. PINCHOT. It is my general custom so to do; and one of the principal objects of going about the West is to meet the western people and get their criticisms, suggestions, and complaints; and this I have repeatedly stated publicly at meetings of western men.

The CHAIRMAN. And have always invited criticism of that character?

Mr. PINCHOT. I have always done so and shall continue to do so.

The CHAIRMAN. Of course, it is obvious, at least, that intelligent criticism of that character may be productive of valuable results?

Mr. PINCHOT. There are few things from which I have profited so much as from suggestions of western people gathered in this way.

The CHAIRMAN. It has been charged that the Forest Service is administering the reserves as a business enterprise instead of for the benefit of the people. Please state specifically just what your policy is in this respect and how you enforce it.

Mr. PINCHOT. When a man desires an exclusive right to use any

part of a forest reserve or any of its products, as distinguished from the public benefit flowing from the reserves in general, then it is fair and right that he should pay for that special right or privilege, and it is so provided by law. I am anxious, as you know, that the forest reserves should become self-sustaining, but my principal desire is not to conduct the forest reserves as a business proposition, but to make them as useful as possible to the people of the West. The increase of that usefulness under the law as it now stands means inevitably an increase in the revenue; for example, the Secretary of Agriculture is directed by law to sell mature timber to the highest bidder after advertisement.

The CHAIRMAN. Why should not this mature timber be sold if it is consistent with the preservation of the forests?

Mr. PINCHOT. It should be sold; there is no reason why it should be wasted. But the effect of an increasing use of mature timber means also, under the terms of the law, an increasing revenue.

The CHAIRMAN. Of course, but if the forest reserve contains assets that are in a sense current, what reason is there why the Government should not realize from those current assets?

Mr. PINCHOT. There is no possible reason why it should not, and in doing so it would be following the custom of every other civilized government in dealing with the forests.

The CHAIRMAN. In connection with the grazing, if the forest reserves can be grazed under proper regulations so as to promote the general purposes of the reserves and at the same time if the people who use those reserves for grazing privileges pay therefor, is there any reason why they should not pay?

Mr. PINCHOT. There is no reason, and there is authority of law for so doing.

The CHAIRMAN. Independent of those forest reserves, if these grazing privileges should be thrown open to the public generally the men who would be the strongest in securing them would do the most grazing?

Mr. PINCHOT. Yes. The result of control by the Forest Service is to prevent monopoly and stand in the way of control of great areas by a few big men, who would crowd out smaller men.

The CHAIRMAN. By the exercise of superior force?

Mr. PINCHOT. Yes. That we have stopped.

The CHAIRMAN. Is there any good reason why a condition like that I have just described should obtain?

Mr. PINCHOT. None whatever, and one of the principal benefits that the reserve system has conferred on the West is the absolute stoppage of range controversies and consequent killings on the ranges in the forest reserves.

The CHAIRMAN. There are now about 14,000 permits issued for grazing cattle upon the forest reserves. About how many people did all of that grazing before the exercise of control over the reserves by the Forest Service?

Mr. PINCHOT. That it is impossible for me to say, for no record exists. I can only reply in general that the number of small men, as compared with the number of large men, is increasing rapidly under the forest regulations. We give a definite preference to the small man in making the allotments of grazing privileges.

(Witness: Pinchot.)

The CHAIRMAN. How do you justify the increase in appropriations for the Forest Service as discussed in the Senate? State in detail what Government forest work has cost each year since you took charge of it and what you expect it to cost in the future. And you might state, too, whether it is true that the same volume of work is costing more now than in past years, or whether the volume of work done has increased. If it has increased, please tell the committee just how the increase has come about.

Mr. PINCHOT. In answer to the first part of your question, I refer to the tables submitted in the first part of this hearing. The volume of work has greatly increased because the use of the reserves by the western people has greatly increased. The work is now being done with far greater economy and efficiency than was the case two years ago, because of improvements in organization during these two years. My testimony already shows how much this increase of use is in certain cases. I should add also that the area of forest reserves has more than doubled since they were transferred to the Forest Service.

The CHAIRMAN. That is to say, by additional proclamations the area has been increased more than 100 per cent?

Mr. PINCHOT. Yes.

The CHAIRMAN. I notice that Senator Heyburn states that \$43,323 is the only necessary expense that has to come out of the residue at present in the special fund. I wish you would state what the charges are that are estimated against that fund for the present fiscal year; and under what authority of Congress are those estimates made?

Mr. PINCHOT. Senator Heyburn has confused the expense for fighting fire, which amounted to \$43,323 in the last fiscal year, with the total expense of handling the forest reserves. The total expense for the year is estimated at \$1,955,000, and it is authorized by the act of February 1, 1905, and the last two agricultural appropriation bills. In that connection I should like to say that the impression seems to prevail that the expenditures for the Forest Service are not regulated by law and that no report is made of them. As shown by my previous testimony and that of Captain Adams, all expenditures in the Forest Service are made exactly in accordance with existing law, and full and detailed accounts are submitted.

The CHAIRMAN. As I understand it, there is absolutely no distinction between the funds with reference to restrictions under which they are expended?

Mr. PINCHOT. None whatever.

The CHAIRMAN. And each is equally as open to examination and inspection as the other?

Mr. PINCHOT. Precisely so.

The CHAIRMAN. What class of roads do you intend to build from the working capital for the proper development of the forest reserves?

Mr. PINCHOT. These roads will be used for two purposes: In the first place, for the convenience of the general public in going into the reserves on their business, whatever it may be; and secondly, for the development of the resources of the reserves, as, for example, in making bodies of timber accessible which otherwise would not be accessible; and in making it possible to take stock into parts of the reserves

(Witness: Pinchot.)

which they can not now reach. In general, to facilitate the patrol and protection of the areas.

The CHAIRMAN. Will these roads be constructed in such places and in such manner as to be ultimately utilizable by the public in case the reserves are thrown open to private ownership and occupation?

Mr. PINCHOT. They would be of the greatest value in that case, as they would also be if the reserves are not thrown open. •

The CHAIRMAN. It is your purpose to locate them so as to be in the localities and places where they would be feasible and usable in case of ultimate occupation of the reserves by private individuals?

Mr. PINCHOT. Yes. And we are in frequent receipt of petitions and requests from people in the West for the construction of roads through the reserves. I deeply regret the cutting in half of the \$1,000,000 which the Senate Agricultural Committee reported for this purpose, because it will be a serious loss to the western people themselves—for example, where there are small bodies of agricultural lands inside a forest reserve the settlers can not afford to build enough roads for their purposes. The Forest Service proposed to help them through this appropriation, the loss of which will be severely felt in many parts of the West.

The CHAIRMAN. That simply opens up to these private individuals a means of communication of which they would otherwise be deprived, and in the absence of this transportation their property is practically worthless?

Mr. PINCHOT. Yes; of small value compared to what it would be if they had proper transportation.

The CHAIRMAN. In case the State lands unsurveyed are included in forest reserves the title of which has not accrued to the State by reason of failure to survey, has the State now the power to select other lands as indemnity for the lands thus included in the forest reserves?

Mr. PINCHOT. The Government has specifically given the States that power. If the States do not exercise it, the States and not the Government are responsible.

The CHAIRMAN. It is entirely at their option?

Mr. PINCHOT. Yes.

The CHAIRMAN. Is there any difference in the legal status of sections 16 and 36 before survey and any other land that is unsurveyed?

Mr. PINCHOT. No.

The CHAIRMAN. Then the States are entitled to indemnity for those sections in case they are included in the forest reserves?

Mr. PINCHOT. They are.

The CHAIRMAN. While it may be true that the State constitution or law may prohibit the State from divesting itself of the title of any land that is vested, I understand, however, that State law does not prevent the State from exercising its right of selection by way of indemnity for land included in unsurveyed territory of the forest reserves?

Mr. PINCHOT. It does not.

The CHAIRMAN. I can not see where there is any difference between the two propositions. Is there any?

Mr. PINCHOT. None that I know of. Senator Heyburn contends that the grant to the State of Idaho was a grant in præsentia and

(Witness: Pinchot.)

took effect previous to the survey, while the decision of the Secretary of the Interior is to the contrary.

The CHAIRMAN. And the decision up to date rests with the United States Government?

Mr. PINCHOT. It does.

The CHAIRMAN. Has the question of the validity of that decision ever been decided in any action calling into question the title of any land?

Mr. PINCHOT. Not to my knowledge.

The CHAIRMAN. How long have those decisions been in existence?

Mr. PINCHOT. For a long term of years.

The CHAIRMAN. Has the State of Idaho exercised the right of selection by way of indemnity under those decisions, do you know?

Mr. PINCHOT. I believe it has.

The CHAIRMAN. Upon what theory does your Service, subject of course to the approval of the Secretary of Agriculture, make charges to electrical and other power companies for conservation of water and the use of it where it is included in the forest reserves by people undertaking to utilize the horsepower that they are developing in those sections?

Mr. PINCHOT. The Forest Service proposes a charge under three heads: First, an annual rental charge for the land occupied by power houses erected in any forest reserve on Government land; secondly, a charge per mile for transmission lines, conduits, or pipe lines; third, a charge for any other resources or opportunities furnished by the Government, which we call a charge for conservation. The Government furnishes to such a power company all the configuration of the land which it owns, the fall which it utilizes, and it conserves the watershed, therefore keeping the water coming. These two items are included in the conservation charge. The waters are granted to the States by the United States, and by the States to the present owners or their grantors. The Forest Service makes no charge for that water, of course, but since it would be necessary for these power companies either to acquire and protect the watersheds themselves, or to build extensive reservoirs, unless the Forest Service protected these watersheds, we believe a reasonable charge should be made for the benefit which accrues to the power companies by reason of the protection of the watershed by the Forest Service. Of course where definite rights have already been acquired to enter forest reserves for these purposes, no charge can be made, and all charges will be made reasonable and certain, neither prohibitive nor confiscatory.

The CHAIRMAN. That is, you do not make your regulations *ex post facto* in their operations?

Mr. PINCHOT. We do not.

The CHAIRMAN. They all operate in *futuro*?

Mr. PINCHOT. They do.

The CHAIRMAN. What would be the effect of this amendment that has been adopted by the Senate with reference to the regulation of the water rights?

Mr. PINCHOT. The effect would be to give to great monopolies unrestricted benefit of water conservation by the Government in the West without payment therefor. There is at present a very large

movement throughout the West to consolidate companies which have control of these water powers.

The CHAIRMAN. This movement that you speak of is not confined by any means to one State. I learned when I was in Utah last fall that large companies were conserving the water power of several streams and transmitting it over hundreds of miles of territory.

Mr. PINCHOT. Precisely. These great companies which are getting control of the water powers would be protected from paying a reasonable charge for what the Government gives them if this amendment of Senator Hemenway goes through. In other words, they would be getting most valuable service for nothing from the Government instead of paying for what they get. Of course we want to encourage development of the water powers, but a reasonable charge would not interfere with that.

The CHAIRMAN. That is to say, one of the fundamental reasons why it is necessary that the conservation of the forest reserves water supply should be controlled by your service, or some other Government bureau, is to protect the sources of the water supply?

Mr. PINCHOT. Precisely.

The CHAIRMAN. And the people who monopolize the water supplies for power ought in fairness and equity to sustain at least some reasonable proportion of the expense that is expressly incurred for that purpose?

Mr. PINCHOT. That is it exactly. The water-power business in the West is enormously profitable. It is not rare for the cost of construction to be earned in from three to five years. It is only fair that the men who get the exclusive benefit of the use of these watersheds in this direction should pay a reasonable fee for what they get.

The CHAIRMAN. One reason why the General Government is going to a large expense to conserve the forest reserves is to maintain these water powers, and having gone to that large expense there is no good reason why the people who use this power should not pay for what they receive?

Mr. PINCHOT. Exactly.

The CHAIRMAN. The benefit to the general public is somewhat indirect, but the benefit to the people who utilize the resources thus conserved by the action of the Department is direct, immediate, and exclusive, and there is no particularly good reason why they should not pay something therefor. That is the Department's view, is it?

Mr. PINCHOT. That is it exactly.

The CHAIRMAN. I notice that Senator Fulton stated Monday that the receipts from the forest reserves are being levied and collected without authority of law. I think you have gone over this quite fully in your former testimony, but if not, you may state generally what the fact is.

Mr. PINCHOT. The Senator is entirely mistaken as to this position. The acts under which the Forest Service is collecting money are the acts of June 4, 1897, section 5 of the act of February 1, 1905, and the agricultural appropriation bills for 1906 and 1907.

The CHAIRMAN. I am very greatly obliged to you for coming in this morning, and unless some other criticisms are made, the details of which it has been impossible for us to ascertain in advance by personal application to the parties interested therein, this, I think, will conclude your examination.

WEATHER BUREAU.

JANUARY 7, 1907.

(Part of testimony, given on above date, before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF PROF. WILLIS L. MOORE, CHIEF OF THE WEATHER BUREAU, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. Before going into the matters of the expenditures in connection with your Bureau, I perhaps ought to say that my attention has been called to the claim that the Department has not made proper specifications for the purpose of getting the best results in the matter of the purchase of cables, and I call it to your attention now, so that at a subsequent hearing of the committee you can be prepared to go over that matter from the standpoint of the Department, and be prepared to go into it fully.

Professor MOORE. Very well, sir; I will bring in full information early next week.

The CHAIRMAN. Now, you wanted to call attention, Professor, to the matter of promotions.

Professor MOORE. Yes; promotions.

The CHAIRMAN. And to give some illustrations; and you may do so, if you please.

Professor MOORE. I would like to describe the system of promotion that obtains in the Weather Bureau. An observer enters the Weather Bureau at \$720 per annum. Of course he has a probationary period of six months, during which, if he does not show an aptitude for the work, he is dropped.

The CHAIRMAN. What is an observer?

Professor MOORE. An assistant observer takes observations, compiles meteorological records, and makes weather maps.

The CHAIRMAN. How many of these stations have you?

Professor MOORE. About 200.

The CHAIRMAN. Scattered all over the country?

Professor MOORE. Yes; and from that force we recruit the force at Washington, as a rule. The observer, after six months' probation, must then maintain a good record for aptitude and efficiency for a period of one year at least before he can be advanced to the grade of \$840. Then he must pass an examination in the English language, arithmetic, and elementary meteorology before he can be passed to the grade of \$1,000.

The CHAIRMAN. That is not a civil-service proposition, but is under regulations that you have established?

Professor MOORE. It is under regulations of our own. Then that man must serve two years in the \$1,000 grade and pass an examination in algebra, trigonometry, and elementary physics before he can

(Witness: Moore.)

go to the next higher grade. After reaching the \$1,200 grade he must pass an examination in astronomy, botany, and higher meteorology and serve two years in that grade before he can be advanced to \$1,400. Beyond that we hold no theoretical tests, but as he goes up through the grades he is passed upon by a board of which I am chairman.

The CHAIRMAN. Do you keep any records of efficiency?

Professor MOORE. I am coming to that. Before he can be advanced from one of these grades to another he is each six months passed upon by a board composed of several of the division chiefs at the central office, of which board I am practically chairman.

Mr. FLOOD. Let me ask you here, do you appoint your assistant observers from the civil-service list?

Professor MOORE. Entirely; entirely; and this board has before it a written report from the man under whom the observer is serving, telling all about him, how he lives, whether he wears clean linen and comes to the office shaved and well dressed, and whether he has a bank account, whether he saves his money, and all the details of his personality. All those details are gone into, and he is reported upon as to whether he is obedient, tractable, as to whether he is studious, and all particulars with regard to him.

The CHAIRMAN. You mean in case of his promotion?

Professor MOORE. That information comes for every assistant observer in the service. A man who gets a favorable report from the man under whom he is serving, and then gets another report from our supervising examiner as to the educational test that is favorable, will, by the board, be given a 100 mark. If he is lacking in point of length of service, or if there is some question about whether he is deserving of promotion, that makes a difference. Sometimes it is a close decision as to whether a man is deserving of promotion or whether he is not. He may have done pretty well or may promise to do better. He may be still in the process of development. That man will have a mark of 85. If the employee is well known with regard to his qualifications, if we have had him long enough to know all about him, and if we consider that he is well fitted to do the work that he is now doing, but that his capacity in doing this work and his habits as to studiousness do not indicate that he is fitted for higher work, he is given a marking of 75. He may hold that position as long as he wishes, provided he does the work well. If he has had trouble and been reprimanded or admonished, he is given a marking of 50. Now, when the Chief of the Bureau comes to recommend—

The CHAIRMAN. Suppose he gets less than 50, does that indicate separation from the service?

Professor MOORE. There is no lower marking than 50. It means that in case of any further trouble he will have to answer charges for his dismissal, and he is notified of that when he is given the marking of 50.

The CHAIRMAN. Are these records open to the men?

Professor MOORE. To everybody; yes, sir. Now, you might ask me if these theoretical tests—

The CHAIRMAN. Before you come to that let me ask you: Are these records of efficiency—that is, of the work done from time to time and

(Witness: Moore.)

of the character and conduct of the men—made up every year, or how often are they made up by his superiors?

Professor MOORE. Every six months.

The CHAIRMAN. Are they made up from recollection over that period of six months?

Professor MOORE. Largely from recollection; we have found it impossible to reduce to exact mathematical terms a man's efficiency. You would have to count up how many letters he wrote and how many words he misspelled, and it would be very difficult to reduce that to mathematical terms. We do this: We take the record that an observer makes in his meteorological work. His compilations are examined at this office and the number of errors determined and entered against the name of each man at the end of each six months. Here is a man that has a clear record for six months. This man has only 6 errors, and this one has only 10, or this man has 50 errors; the latter gets an admonition and is warned that he will be either reduced or dismissed unless he is more accurate in the future. That is one way you can reduce a man's work down to mathematical precision. But all of our men are not engaged in making these meteorological forms, so that we have to have some other standard to measure them by. We find a man in charge of a station. Here is a man who is quick and alert in everything that we give him to do, and he does it well, and his observations are taken well, and he is obedient. That is about as good a report as you can get of a man. Then we say, "Now, this man has proved out so far as aptitude and industry are concerned." Now, before he can go to the next higher grade we want him to have a certain amount of theory. So we examine him in certain text-books. We do not make his examination competitive, because I believe that any system of promotion that is based alone on theoretical tests does not bring the best men to the front, because many of the men who stand highest in technical examinations are of little use when it comes to practical work. I am not saying that against technical education, because we exact the technical education; but a man must have the technical education plus the ability to apply his knowledge. That is what we require.

The CHAIRMAN. Every man can not reduce theory to practice.

Professor MOORE. Now, we say that that man is all right so far as his aptitude to do things is concerned, and so we examine him, and we do not make the examination competitive, but we say that he must pass with a marking of at least 70 per cent. We give little thought to whether they pass at 70 or 75 or 80 per cent. We want to know that each man is familiar with certain theory.

Now, when the man we are considering has passed all of our tests as to aptitude, industry, integrity, and theoretical knowledge he gets a marking of 100, and then we arrange all that have a marking of 100 in accordance with longevity. Until then we do not take any account of longevity, because I think that one of the worst methods of promotion is by longevity, because a man says to himself, "All I have to do is to remain in this job and wait until somebody in front dies and then forward I go without any effort." When you have a number of men who have proved their fitness then longevity should be taken into consideration, and it is taken into consideration in this system.

The CHAIRMAN. But there does come a time when a man's ability is diminished by his age?

Professor MOORE. Yes.

The CHAIRMAN. What is that time?

Professor MOORE. You can not tell what it may be. With one man it is 50 years of age. I have had men reduced at 50 years of age because of superannuation, and I have still men 75 years of age who are vigorous and active and efficient men.

The CHAIRMAN. In other words, that is entirely controlled by the personal equation?

Professor MOORE. Yes, sir. Here is an illustration right here. There is a name on this list. I do not care to embarrass the man by giving his name, but you can look at it. This man was at one time getting over \$2,000 in the Weather Bureau. He is about 68 years of age. That man is a man of good character and habits, but he is simply too old, he lacks energy, and he can not do much work. The result is that he has been reduced from \$2,000 down to \$1,200. Now, he is competent to do the \$1,200 work. If he were not so in our judgment we would still further reduce him. We have some old employees here who have been further reduced because they were not, in our judgment, earning the salaries that they were getting.

The CHAIRMAN. Does this man render value received for \$1,200?

Professor MOORE. Fully; fully. But he could not do so for the \$2,000. That has to be done according to somebody's discretion, and that discretion is exercised by the Secretary on my recommendation.

Beyond \$1,400 we hold no theoretical examinations. The test is what a man does. Then he gets to the place where he is a supervising man, in charge of a small station. If he does well in charge of a small station we give him an opportunity to make local forecasts, and each month his accuracy is marked up rigidly by the central office. These are test forecasts, and are not given out to the public, you understand. At the end of the year, if he maintains a fair degree of accuracy in comparison with the State forecasts, then we allow him to make local forecasts. If he does that well, he may be advanced to charge of a large station, for instance, like New York or Philadelphia. So that with us there is a rigid system of the survival of the fittest. It is an unpleasant duty to reduce a man because he is too old, but if we are going to maintain an efficient public service it is the only thing we can do. We do do it. I only want to make that plain, that we do do it when necessary. I have the records here that will show you all this.

The CHAIRMAN. Of course these are the men that make the forecasts which lead us to expect fair weather or foul, as the case may be?

Professor MOORE. Yes. Now, the office force in Washington is recruited mainly from the young observers that have been trained out in the field.

The CHAIRMAN. The force in this office here?

Professor MOORE. Yes.

The CHAIRMAN. How many grades do you have below \$1,400 in the service, beginning with the assistant observer?

Professor MOORE. Fourteen hundred dollars, \$1,200, \$1,000, \$840, \$720. Below that they are watchmen, laborers, or messengers.

(Witness: Moore.)

The CHAIRMAN. Explain the difference in the work done by these men in the different grades, and the kind of work, the quantity, and quality.

Professor MOORE. A description of the work done, for instance, at Philadelphia, would be fairly illustrative of the work that is done at these offices; not entirely so.

The CHAIRMAN. Start right in and tell us what the lowest man on the roll does.

Professor MOORE. I will introduce a lower grade, one that I have not yet spoken of in speaking of the Philadelphia station, because I think it is necessary to the full illustration of the question. The lowest grade messenger there is \$360 a year. He is taken from the civil service. If that boy does well, at the end of one or two years he is advanced. We have not made any definite rule as to the time, but he will not be advanced in less than one year.

The CHAIRMAN. What does he do?

Professor MOORE. He takes the maps from the press and folds them and carries them out and posts them in the principal boards of trade and other important places in the city. He is the messenger of the station. In a larger city we have two messengers, one at \$360 and one at \$480.

The CHAIRMAN. Keep right on with Philadelphia.

Professor MOORE. These messengers may by studying, and passing before the civil service, possibly be advanced to the grade of assistant observer at \$720. Now, take one of these messengers when he gets to be an observer at \$720; then he is allowed, under the supervision of an older observer, to make an observation once a day, and he must take that observation under practice until he gets so that he can take it and make the mathematical reductions and encipher it inside of twenty minutes. Then when he becomes efficient he will be allowed to take one of the regular observations each day.

The CHAIRMAN. Without supervision?

Professor MOORE. Without supervision, and that will go into the telegraphic service of the United States.

The CHAIRMAN. While he is working still in the same grade?

Professor MOORE. In the same grade—\$720—but he is being taught by a man that gets a thousand dollars or more.

The CHAIRMAN. But while he is making these observations he will make them independently of anybody else?

Professor MOORE. Yes, sir; precisely. Then he will begin to enter on the forms of the station the various meteorological data, and if he does that well, in not less than one year he may be advanced to \$840, after theoretical examination, and when he gets to be an \$840 man he will be competent—he will have served two years in the service, and he will be competent—to take all kinds of meteorological observations. By that time he also will have learned how to enter up these observations in the forms and make deductions from them, and these forms will come into the central office and be examined by experts; and if he does that well, at the end of another two years, after passing the necessary theoretical examinations that I have spoken of, he may go to a thousand dollars.

The CHAIRMAN. When he gets to a thousand dollars what does he do?

(Witness: Moore.)

Professor MOORE. When he gets to the thousand-dollar class he may do some of these minor duties that he has already done, but he will probably be doing the more difficult meteorological work of the station. By that time he will be competent to take a barometer down and repair it, or to take down the anemometers and clean and test them, and so on.

The CHAIRMAN. Does he not do any of these things when he is in the grades below?

Professor MOORE. He is being slowly taught. Some will go over these things much more rapidly than others. But all the time it is a gradual advance, step by step, from a less important to a more important duty; so that when a man gets to a thousand dollars he is a pretty well instructed and competent observer. On the big stations there must be a regular observer and an assistant in charge of the station. The first assistant gets \$1,200. At Philadelphia the man in charge gets \$2,000. The assistant in charge is a man who has shown himself to be expert both in the care of the meteorological apparatus, in setting up and taking down instruments, in repairing and adjusting them, and in keeping all manner of meteorological records, in writing a story on each day describing what the weather has been all across the country, and in printing the daily reports and distributing them. It is technical work that requires men of a high degree of skill, quick of hand and alert with their intellects.

The CHAIRMAN. That is the \$1,200 man?

Professor MOORE. Yes; that is the \$1,200 man. When he gets about \$1,200 he may make some forecasts, and if he develops in that direction he may be put in charge of a small station and make local forecasts; and if he does well in charge of a small station like Concord, N. H., or like Scranton, Pa., which is not so small, but larger than Concord, he is again advanced. Take Minneapolis. That is the headquarters of the climatic service of Minnesota. In addition to other duties the man there studies the climate of the State of Minnesota, and has at least 100 standard thermometers and rain gauges scattered all over the State; their records are collected at Minneapolis once each month, digested by this head man—we call him a section director, not an observer—and collated and printed. That section director exchanges his report on the climatology of the State of Minnesota with every section director in every other State, giving the temperature and the rainfall for every month in the State, so that you can walk into the office at Ithaca, N. Y., which is the headquarters for the State of New York, and get the details of the climatology of pretty nearly every county in the United States, except in the subarid regions of the country.

These climatology data, as you probably know, enter largely into the various industries of the country. Our system itself selects the men for promotion, rather than the Chief of the Bureau. For instance, if you had a selection to make here the Chief of the Bureau would have seven men to select from [indicating on list]. He would only have seven men to select from. My option is limited to those men. I would probably take the oldest one of the seven, but in my judgment if the youngest man of that number were really the best suited for the vacancy to be filled I would unhesitatingly take him. But unless there was a very good reason I would take the oldest man.

(Witness: Moore.)

This system has worked so well that I seldom know what it is to have a man in the weather service ask for promotion or to have anyone come and ask for his promotion.

Congressmen do not know what it is to have one of those men ask them for promotion. You never hear of a man coming to you. I do not say that a man should not go to his Representative. If a man is imposed upon I do not say that he should not, but I think it is the duty of his Representative to come and ask in regard to it. We have questions from Senators and Representatives, and we always show the record, and we can say, "There is the reason this man has been reduced." And I have never yet failed to get the approval of the Representative when he sees the record, if your case is drawn right, if you are acting properly. I think that is all I have to say in regard to promotions.

The CHAIRMAN. These promotions in your department are based, if I understand it, upon the increased efficiency of the men and their capacity to do additional and extra work?

Professor MOORE. Extra work.

The CHAIRMAN. Aside from that which they have been doing in the lower grades which they have occupied?

Professor MOORE. Entirely. I will make one other statement in regard to promotions. I have several men in the service who have been in charge of stations, but who by age or sickness have become less efficient and are not able to do the work they formerly did, and in such cases we have reduced these men down and assigned them to a half day's work per day. Why? Because at most of these stations the first half of the day is the most busy part of the day, and we need more help in the morning than in the afternoon, so that we will give one of these old fellows a half day's work, and he gets a half day's pay for it. In other words, we pay him just what he is able to earn, and nothing more.

The CHAIRMAN. Who fills out the balance of the day?

Professor MOORE. In most of the stations the bulk of the work comes in the morning.

The CHAIRMAN. Oh, yes.

Professor MOORE. In most of the stations the printing of the maps, and so forth, comes in the earlier part of the day, and we are busiest in the morning.

The CHAIRMAN. These suggestions you have made in regard to the classes, do they apply to all the classes coming under your Bureau?

Professor MOORE. Not entirely. I will answer that by saying this: That all these people of whom I have spoken are on the lump-sum appropriation, and their salaries are not determined by statute. Their salaries are determined by my recommendation and the approval of the Secretary. And in that connection I would refer to this fact: That the average salary of these people in the Weather Bureau outside of Washington is \$991.

The CHAIRMAN. Per year?

Professor MOORE. Per year. That is, where the rate is determined by the Department. For the other salaries, of the employees in Washington, where the rate is determined by act of Congress, the average is \$1,193. I simply refer to that to show that the latitude allowed the Department to regulate these salaries is not abused.

(Witness: Moore.)

The CHAIRMAN. That is, it results, if anything, in economy?

Professor MOORE. In economy.

The CHAIRMAN. What proportion of your employees—of the personnel of your force—are employed out of Washington?

Professor MOORE. I will give you that in one minute. Here it is. I find it in my annual report for the year ending June, 1905. In the city of Washington in June, 1905—and there is no very large change from this—the number was 183, which is 19 less than the number of employees at Washington sixteen years ago.

The CHAIRMAN. How have you been able to reduce the force; by systematizing the work and by efficiency on the part of the employees?

Professor MOORE. Yes, sir. The force was largely reduced the first six months after I came to Washington. It had been reduced somewhat just before I came to Washington. I do not want to take the credit for a good deal of the excellent work that Mr. Morton did when he was practically running the Bureau himself; but for the first six months I remember that my estimates, which the Secretary approved, provided for a considerable reduction of the force, for the reason that I abandoned the making of a considerable number of meteorological records that were never looked at—which were simply stored in the basement—and in that way the work was much lessened.

The CHAIRMAN. They were not used, even by the Department?

Professor MOORE. They were not used even by the Department; no, sir. They were being made because the idea seemed to be that records that had once been started should always be continued.

The CHAIRMAN. That was purely an academic proposition?

Professor MOORE. Yes. Now the gradual increase of the demands coming from the commercial, marine, and agricultural districts, and manufacturing interests has made a steady increase in the demand on our people for further weather information.

The CHAIRMAN. The increasing demand?

Professor MOORE. This force was reduced down to 165 from about 200, and now it has slowly gone back to 183. But the original reduction was due to the cutting out of a great many unnecessary reports. For instance, they used to take three observations a day, and I reduced it to two. They used to compile a great amount of data that I could see no use in, and I stopped that.

The CHAIRMAN. Have you eliminated everything that it is practicable to eliminate along those lines?

Professor MOORE. Yes; I think so; and we have increased on other lines. Now, you asked me how many were employed in this office at this time.

The CHAIRMAN. Yes.

Professor MOORE. One hundred and eighty-three are employed in Washington, of which number only 11 are unclassified. There were 483 classified outside of Washington and 14 unclassified, making 655 classified employees outside of Washington. There were 914 low salaried people.

The CHAIRMAN. That is in addition to these that you have spoken of?

Professor MOORE. Out of Washington; 914 unclassified people out-

(Witness: Moore.)

side of Washington receiving salaries varying from \$6 per month up to \$25 per month, but most of them only getting \$10 or \$15 a month.

The CHAIRMAN. What are they doing?

Professor MOORE. They render only a small service each day. There are 159 storm-warning display men. They get from \$10 to \$25 per month. The majority of them get \$10 per month.

Mr. FLOOD. How are they distributed?

Professor MOORE. A storm-warning display man is located at nearly every port where there is no regular meteorological station. There is a steel tower, 75 or 100 feet high, with a place on top to display flags. Usually we employ some person as display man whose business keeps him near the water front, and we telegraph to him and he hoists and lowers these signals. Sometimes he keeps a record of wind direction, and then he gets \$15 or \$20 a month. Sometimes he will have a telephone in his office or his house and will keep open communications with an outlying island connected by a cable. That is where the cable question comes in. He may then get \$25 a month; \$25 is the highest. There are 159 such stations. Then there are river observers, 344. They measure the height of the gauge and the rainfall on some tributary to a main stream, and they telegraph it in to some office which is the center of a river district.

There are about 20 of these river observers in the Pittsburg district, and each morning they measure the rainfall on the watershed that constitutes the Allegheny and the Monongahela, and they telegraph it to Pittsburg; and the local forecaster, from the reports of these 20 river observers, can see the amount of the precipitation in these two watersheds, and from the experience of previous years he can estimate what water there will be at Pittsburg one, two, or three days in the future. When these floods come they flood several miles of shops. On the warning of the Bureau the operators of the shops or works prepare for the flood; they grease up the machinery and get everything out of the way and wait for the flood to pass through. These river or rainfall observers get only 20 cents a day.

Mr. FLOOD. Twenty cents?

Professor MOORE. Twenty cents for taking the observation and filing it.

The CHAIRMAN. It only takes them a few minutes to do it.

Professor MOORE. Yes. Suppose a man is at a critical river place. We may telegraph him back-river stages from other stations, and he may distribute the information to a number of people engaged in the lumber business or in river traffic. That observer may get \$25 a month. Our rule is that one is never dismissed so long as he does his work well, and when we want to get a man we send an inspector to find a man who is so located that he can do this work in addition to his other calling.

Then there is the cotton-region service and the corn and wheat region service and the sugar and rice observers. These really might be all called crop observers. They take readings of temperature and rainfall in the growing fields every morning and telegraph them to some center, and there that information is digested and it is telegraphed to various commercial exchanges in the United States.

Mr. FLOOD. What do you pay them?

(Witness: Moore.)

Professor MOORE. Twenty cents a day or more; so that there are altogether about 1,600 employees in the Weather Bureau.

Mr. FLOOD. Do you have any tobacco observers?

Professor MOORE. No; we never have extended it to the tobacco regions. They have never asked for it. But we do distribute to tobacco people extensively the frost and cold-wave warnings. I think that describes the work of the officers of the Bureau and the salaries paid to them.

The CHAIRMAN. Do you have any statistical work done in your Bureau?

Professor MOORE. No, sir; not what you mean by statistical work. We have a good deal of compilation of meteorological data, and that might be called statistical, but it is not statistical in the sense in which I think you mean it.

The CHAIRMAN. The meteorological data are collected by your own people exclusively?

Professor MOORE. Exclusively.

The CHAIRMAN. And there is no other source from which they can obtain it? Is that correct?

Professor MOORE. You are correct about that.

The CHAIRMAN. So that if that is termed statistical work, it is not duplicated by any other Department of the Government?

Professor MOORE. It is not duplicated by any other Department of the Government.

The CHAIRMAN. Do you collect any other data that are collected by any other Department of the Government, for any purpose?

Professor MOORE. No; we confine ourselves entirely to the collection of meteorological data. Three years ago, by a board appointed by the President, of which I was one, all the meteorological work in the Navy was turned over to the Bureau, and now the Weather Bureau does all the meteorological work of the Government, and that work is not duplicated by any other institution.

The CHAIRMAN. How about the Army?

Professor MOORE. The Army does not do any.

The CHAIRMAN. Do the engineers do any work that would be parallel to the work that you are doing?

Professor MOORE. None whatever.

The CHAIRMAN. Yours has no relation to theirs?

Professor MOORE. None. There was, I believe, considerable duplication between our Bureau and the Navy, but our board settled that and eliminated it.

The CHAIRMAN. That is eliminated?

Professor MOORE. Yes.

The CHAIRMAN. How long ago was that?

Professor MOORE. Two or three years ago.

The CHAIRMAN. Did that result in any diminution of the clerical force of the Navy Department, do you know?

Professor MOORE. I do not know that.

The CHAIRMAN. I wish you would give us, so that we can reach some concrete results in that direction, the time when that change was made.

Professor MOORE. Yes; I will.

(Witness: Moore.)

The CHAIRMAN. Perhaps you may be able to state now to what extent they should have been relieved by that?

Professor MOORE. There were 21 hydrographic offices maintained at various places in the United States.

The CHAIRMAN. Doing substantially the work you are now doing?

Professor MOORE. They were doing much of the meteorological work that was transferred to us.

The CHAIRMAN. Yes.

Professor MOORE. We took up that work without additional help.

The CHAIRMAN. That is, you took it onto your Bureau without an increase of clerical force?

Professor MOORE. I am slightly in error. This was turned over to us in the fall, two years ago, and not three years ago, and the next Congress gave me three or four additional clerks, largely because of the transfer of that work. But there was no very large increase in our working force. Now, what other duties the hydrographic office had—

The CHAIRMAN. The fact of it is that at that very time you were doing practically all this work?

Professor MOORE. There was a duplication.

The CHAIRMAN. Of course it was a duplication, and one element of the duplication which was equal to the other was simply eliminated—it would not involve any increase in force; it ought to involve a decrease of force in that department in which it was eliminated.

Mr. FLOOD. You got rid of the wireless telegraphy. Did that decrease your force any?

Professor MOORE. We only had an experimental force of three or four men engaged on that, and they went back to station duties.

The CHAIRMAN. Is there not a uniform number of men in these stations distributed over the country?

Professor MOORE. That depends on the amount of work. Chicago has 10 men. New York has, I think, the same number. Boston has 9; Philadelphia has 8; Richmond, Va., 4; Lynchburg, Va., 1 man and a messenger, and so on. It depends on the amount of work done at the station.

The CHAIRMAN. The larger the business or commercial center the larger the amount of work done?

Professor MOORE. Usually, yes; the larger the amount of work.

The CHAIRMAN. What is the application of that? Is it not essential, in the proper development of your researches and your investigations, and for the purpose of getting accurate results, to get the same information in one territory or section that you get in another, and to distribute it?

Professor MOORE. We do get precisely the same information—I will not say precisely, but nearly the same information—at a small office where there is only one man that we get at the office at New York or Boston.

The CHAIRMAN. Otherwise you would not get the uniform results, and could not predicate the conclusions?

Professor MOORE. The increase comes in the greater distribution of meteorological data.

The CHAIRMAN. Explain that to us fully.

(Witness: Moore.)

Professor MOORE. For instance, take Lynchburg, Va. It takes a simple observation, and just as complete an observation, as New York takes. But Lynchburg has no such great commercial or marine interests as New York has. The result is that Lynchburg has a small daily map telegraphed to it; that is, it has enough data telegraphed to it to make a small map. That map can be issued with the aid of a messenger, and distributed. New York, because of its great commercial and marine interests, requires the complete data from the whole United States to be telegraphed to it, and it requires instead of 100 maps, which is about the number we distribute at Lynchburg, 2,000 maps to be distributed. New York requires also glass maps, such as that in the lobby of this House, for three of its commercial associations; they are put up each morning by an observer. It keeps one man at the phone all the time answering inquiries from various parts of the city, as, for instance, "What was the weather on a certain day," and "What is the temperature at this place and that place." Then there are a great many details of the growing crops taken by these 20-cent observers which are telegraphed to a city like New York, made into a special bulletin, and distributed; and then there are many industries that call for a special kind of information each day. So it requires a large clerical force to collect and distribute the various information that the various industries require in a place like New York.

Now, if we go out to a place like Modena, Utah, there is a wide space with no observation within 200 miles, but we need to know the pressure of the air right in that place in order to make forecasts for the region east of there; and we have built a little building and put an observer there. There is little for him to do there but to take his two observations and transmit the information. There is not more than four hours' work a day there, but we keep that man there the whole year.

The CHAIRMAN. How do you distribute your men—mathematically, or simply where the various localities are populated? Do you divide the country off into squares?

Professor MOORE. We try to get the observation stations within at least 100 miles of one another, except in the western regions. There they are often 200 miles apart.

The CHAIRMAN. You try to approximate a mathematical distribution, or perhaps I should say a geometrical distribution; that is the better way to put it?

Professor MOORE. Yes; but if we needed an observation in a certain region and a place 40 or 50 miles away was the better place so far as distribution was concerned—

The CHAIRMAN. For accumulating data?

Professor MOORE. Yes, for accumulating data; we would put it there, so that we could combine the two things, getting observations and distributing to the communities at the same time. There are places on the big lakes, or on the seaboard, where there is such a demand for the information that we keep a full observation station there when for forecasting purposes we do not need the observation at all; but the daily details of weather are valuable in so many admiralty cases, such, for instance, as the direction and force of the wind and the amount of rainfall, and the people demand the service.

(Witness: Moore.)

The CHAIRMAN. That means that your officials are valuable to parties who have private controversies in connection with marine disasters?

Professor MOORE. Yes.

The CHAIRMAN. And your men are used by them as witnesses to establish the existence of certain conditions at a certain time?

Professor MOORE. Yes, sir; and as witnesses to determine, usually, whether a certain thing is an act of God or not; whether the wind was of unusual velocity, for instance.

The CHAIRMAN. That is, demonstrating the physical conditions, so that conclusions can be drawn on each case?

Professor MOORE. Yes. Now, take Galveston. We keep four or five or six men there. We have five men and a messenger, or four men and a messenger, I forget which. That is only a city of 35,000 people. Why do we do that? Because Galveston is the center of the system of climatology for the large region of Texas, and is the place to which river data are sent from several of those rivers that flow from the northwest down to the Gulf, and on each of these rivers we maintain a flood service. So that Galveston has a much larger force than would otherwise be assigned to a place of its size. The climatology of Texas is an important thing.

The CHAIRMAN. In addition to being an observation center, it is a receiving or distributing center?

Professor MOORE. Yes, precisely. So that our assignments of men are determined by the quantity of work there is on a station. Sometimes where there are two cities of precisely the same size and apparently of the same needs, we find that one will make a heavier demand on us than the other. There is no absolute rule, except that we try our best to distribute the force in accordance with the amount of work.

The CHAIRMAN. That is, the whole service has to be flexible, and there is nothing arbitrary, and you distribute it where the needs exist?

Professor MOORE. Yes. Here is where the lump-sum appropriation is better than the statutory, for the field service. If a \$2,000 man resigns—and here is a concrete example—as one did at the Pittsburg station a few days ago, we fill that vacancy by promoting a \$1,600 man to \$1,800. We do not put a \$2,000 man back there right away. Now in that case we have saved \$200. That will almost employ a messenger at some other station. If the man who comes there at \$1,800 is there for two or three years, and if when I send an inspector he finds that that man is well meeting the needs of the community, and his river warnings, which are the most important thing at Pittsburg, have given satisfaction there (and they will catch us up quickly if they are not), that man will go up to \$2,000 or \$2,200, or we might pay him \$2,400. We pay \$2,400 to the official in charge at New York and at Boston.

Again, an \$1,800 man resigns. I say "Well, I can make a shift and take care of his work without filling that place, but I am hard pushed here for two \$840 men, one at each place," and I use that money for two \$840 men and distribute that money at two stations. The lump-sum appropriation is flexible.

(Witness: Moore.)

Take Savannah. The assistant's place should pay \$1,000, but there is a young man working there at \$840. Some one will ask me "Why do you not give him \$1,000?" He has not served long enough. He has not made enough return to the Government for training him to get that salary. If it was made a statutory place, we would have to pay the higher salary as soon as the man takes the place. I have no objection to statutory salaries except that I think it costs more money for the same amount of work. I do not know whether I have talked too long, Mr. Chairman?

The CHAIRMAN. No; go right along. How many hours a day do your men work?

Professor MOORE. Of course the hours of labor here are determined by the regulations, over which I have no control—seven and a half hours.

The CHAIRMAN. Here in Washington the employees work from 9 until half past 4.

Professor MOORE. Yes, sir. Our work outside, of course, runs at every station up until night time, and at many of the offices up until nearly midnight. But my instructions, which have the approval of the Secretary, provide for these stations that they shall render seven and a half hours' service, but that when a storm is imminent, or a cold wave is coming, or there is anything that requires them to work longer hours, they must work. For instance, many times at a station, where there is a meteorological disaster, our men are on duty twenty-four hours of a day.

The CHAIRMAN. That is in an emergency?

Professor MOORE. Such disasters occur occasionally. Then I provide that where it is possible they shall have as much time off as the extra time they put in. We try not to work them more than eight hours on a station.

The CHAIRMAN. Your idea is to give them practically an eight-hour day?

Professor MOORE. An eight-hour day.

The CHAIRMAN. And if they work overtime, you make up for it by giving them that much time off some other time?

Professor MOORE. Yes. But it comes to my attention every day that they do work longer, and do not always take their time off. Our people are enthusiastic. Our observers are really in love with their work. There is something fascinating about it to them; I have had men work eight, ten, or twelve hours, time and time again without complaint. But I believe that seven and one-half hours are enough.

The CHAIRMAN. Perhaps it is the mystery connected with it.

Professor MOORE. But we try to limit the hours to eight or seven and one-half.

The CHAIRMAN. Have you men in the employ of your Bureau, so far as you know, who do other work for private parties, when they are off duty, in their off hours? Of course, you have no control over these men when they are out of hours?

Professor MOORE. Yes, somewhat we have.

The CHAIRMAN. Do you exercise control?

Professor MOORE. Yes, somewhat.

(Witnesses: Moore, Zappone.)

The CHAIRMAN. What is the fact about that; do you know whether there are any of the men in your employ who render service to outside people, out of hours?

Professor MOORE. Our regulations are specific. We do not allow an employee of the Bureau to render any service of a meteorological nature for which he receives pay other than his Government salary. We have in several cases during the past ten years found men taking a little on the side for doing what they thought was some special work for somebody, in the way of rendering meteorological service. In such cases they have been punished or dismissed.

The CHAIRMAN. Yes.

Professor MOORE. Outside of our official time, our regulations require that if a man does anything for which he receives compensation he shall write to this office, and I forward it to the Secretary with my recommendation before he is allowed to engage in any gainful occupation.

The CHAIRMAN. Does he engage in any gainful occupation under that rule?

Professor MOORE. Sometimes. If the occupation is such as not to interfere with the Government work or with the man's efficiency, we give it a favorable recommendation, and the Secretary allows it.

Mr. ZAPPONE. Before leaving that subject, I wish you would explain that the hours of the Weather Bureau employees outside of Washington are different from those of any other employees of the Department inasmuch as they have to work on Sundays and holidays.

Professor MOORE. I forgot to say that. Every day in the year they work, so that we try to let them out on eight hours or seven and a half hours, if possible. We are not always able to do it.

The CHAIRMAN. In what gainful occupations have they engaged outside of their official duties under this rule?

Professor MOORE. There are a few cases where men act as secretaries to church societies, secretaries or treasurers to fraternal societies, and have received permission to act in such capacities. There are a few cases where men engage in study and writing of special articles at their homes after time, and probably may get some slight compensation for the doing of it, but they are usually so well occupied with their own work that they do not have much time to work outside. There is a little of that done.

The CHAIRMAN. Is there any done that is not reported under the rules?

Professor MOORE. I think there is not; no, sir; because our inspectors from time to time visit the stations, and they must ask each man that question, and they report specifically the facts about each man. The inspector also compels each man to answer whether he is associated with anybody, directly or indirectly, who sells anything to the Government or in any way gets any compensation from the Government other than his salary. Such questions are well to ask, because they keep everybody on the alert to keep from making mistakes.

Mr. FLOOD. What is the harm of a man working outside official hours?

Professor MOORE. We would not object to it if it did not wear him out and make him inefficient for the following day. You let a man

(Witnesses: Moore, Zappone.)

take up night work and work every night up to midnight in addition to his day work, that man will be dull and weary the next day, and he is liable to miss an observation and make mistakes, and we can not afford to have mistakes made. In our telegraphic observations the change of one-tenth in a reading of the barometer would show, possibly, the beginning or inception of a storm when none was there, and we have to be very strict in our discipline to see that the work is accurately done and that everyone is there. Those observers must be there at exactly the prescribed time, and there is no excuse.

The CHAIRMAN. Who are the scientific men in your Department who aggregate these results and reach conclusions?

Professor MOORE. There are nine altogether, professors of the Bureau, seven receiving \$3,000 and two of them receiving \$2,500. They are professors of meteorology. I suppose we might come to that as we go along here.

Mr. ZAPPONE. You will find them here, at the bottom of page 23, under the heading "In Washington."

Professor MOORE. The first is Prof. Cleveland Abbe. Professor Abbe was the man who laid the foundations of the present meteorological charts. He has been an aid to every chief since the beginning of the service.

Prof. Frank H. Bigelow is our astronomer and mathematician. He is engaged on difficult problems and in doing the higher mathematical work of the Bureau. He spent two years in working out a better method of reducing the barometer to sea level, and that work is published in a volume and is now the standard for the whole world for barometrical work.

Prof. Charles F. Marvin has invented many of the instruments that we now use without personal profit to himself. He has assigned his inventions to the Government. He buys and tests all instruments that we use.

Prof. Edward B. Garriott is the chief forecaster at this office.

Mr. Berry, while not a professor, is the chief climatologist. He examines all the climatological work of each one of these various State section men. There is a section director in charge of each State, and Mr. Berry supervises the work of each section director in regard to the climate of each State.

Prof. A. J. Henry has charge of special investigations, and every third month he is the regular forecaster here. In the intermediate times he takes up special work. For instance, he has just completed three years' work on the climatology of the United States. That is being used by students of meteorology and by plant physicists.

Professor Frankenfield is in charge, at this office, of the floods of the country. All the various local forecasters that make forecasts for flood districts have their work supervised by him. He studies out and determines how many stations each shall have in his flood districts. He is the man who specially studies the rivers of the country, or rather the hydrology of the country.

The CHAIRMAN. I was looking at this matter of traveling expenses. I see the traveling expenses of the Chief of the Bureau were \$503, and these other gentlemen had traveling expenses ranging anywhere from \$42 up to \$500. Explain generally the occasions that gave rise to that.

(Witnesses: Moore, Zappone.)

PROFESSOR MOORE. Yes. Take my own case; that should be \$300, as there was \$200 charged to me for traveling expenses that I did not use, and the money went back into the Treasury. I had engaged passage for the purpose of attending a meeting of the international meteorological committee, composed of the representatives of all government services, of which I am a member, but the anticipation that your committee was going to meet and might want me caused me to forego the journey; but my passage was bought and paid for, so the item stands in my expense account, although the money was turned back into the Treasury. I had really \$300 of traveling expenses. That was taken up in visiting some of the more important stations in the service, for instance, I visited Chicago once, Pittsburg once, New York twice, and New Haven once. That will take up pretty nearly the \$200; that is, taking up three or four days at a time.

THE CHAIRMAN. Did these other gentlemen have occasion to travel in connection with their duties?

PROFESSOR MOORE. Yes. The amount for Mr. Calvert was \$525. Mr. Calvert succeeded Mr. Zappone in charge of the accounts of our Bureau when Mr. Zappone was promoted to take charge of the accounts of the Department; he is my disbursing clerk and also the assistant of Mr. Zappone. He has charge of the construction of buildings. This year we had nine buildings to construct. I sent him out to report, to look over the plans and the ground and to make a final report on these buildings before I should recommend to the Secretary of Agriculture the acceptance of the buildings from the contractors. He has had several different buildings to inspect in different cities, and he has covered a pretty wide range with that \$500 of expense.

MR. ZAPPONE. The next largest item is that for Mr. Robinson. Will you mention his trips?

PROFESSOR MOORE. He has \$389 of expense. We built a cable to Thunder Island, I believe—no, to South Manitou, in Lake Michigan.

MR. ZAPPONE. To connect Beaver Island with Charlevoix, Mich., was it not?

PROFESSOR MOORE. I forget the name of the island, but it was in the northern part of Lake Michigan, and we built a cable over there, and we sent him down on the north Atlantic coast to repair some cables. He is our chief of telegraphic service, and arranges for the gathering of weather reports by telegraph. He is an expert, and has built all these cables. I have found him to be a very reliable and worthy man.

THE CHAIRMAN. Are all these expenses audited at the time?

PROFESSOR MOORE. As soon as a man returns he must file an itemized report, which is critically examined. He built this cable to Beaver Island, Michigan, connecting it with Charlevoix.

MR. ZAPPONE. Page 4, about the middle of the page, gives you the amount of the appropriation.

PROFESSOR MOORE. This \$389 was Mr. Robinson's traveling expense in superintending the building of this cable up in Michigan. He was there for several weeks.

(Witnesses: Moore, Zappone.)

Now, I will say this, that you will see from time to time, here as you go down these columns, traveling expenses. That is for the shifting of an observer from one place to another. When you come to the inspectors you will find considerable charged up to them.

Mr. ZAPPONE. On page 13, about the fourth column, under traveling expenses, you will see Mr. Conger, an inspector.

Professor MOORE. Yes; the first name on the page is Professor Cox, however. He is the official in charge at the Chicago station. That is a forecasting center; forecasts for about 12 northwestern States are made there. He has supervision over the storm-warning service and makes the storm warnings for the three upper lakes. That item is for traveling and inspecting a large number of substations on Lake Michigan that display the storm warnings.

Then below there are the two inspectors, Mr. Conger and Mr. Hersey, \$949 and \$1,312. These are the two inspectors who travel fully one-half of each year. They spend from one to three days at each station, overhauling it thoroughly, examining all the records, questioning every man, and writing a detailed report.

The CHAIRMAN. That item of \$1,312 is a pretty large item. He must have been traveling half the time. For one hundred and fifty days that is almost \$10 a day.

Professor MOORE. No; in no case is he allowed more than \$5 a day.

The CHAIRMAN. If he only travels half of the year, he would only travel about one hundred and eighty days, and this item is \$1,300.

Professor MOORE. He apparently traveled more, because he can not get but \$5 a day at the most. The remainder of the amount is made up with his railroad fare.

The CHAIRMAN. Then he must have traveled two hundred and fifty days.

Professor MOORE. He may have traveled more.

Mr. ZAPPONE. During 1906 I think he was out a great deal.

The CHAIRMAN. Does he have a maximum limit of \$5 a day?

Professor MOORE. That is the most he can get.

Mr. FLOOD. That does not include the railroad fare?

Professor MOORE. No; that is not the railroad fare. He is allowed for expenses not to exceed \$5 a day.

The CHAIRMAN. Does not that \$1,300 include his railroad fare?

Professor MOORE. Yes; that includes all the expense he incurred for travel. I kept him traveling a great deal of the time. But ordinarily he would not travel more than six or seven months.

The CHAIRMAN. I understood you to say that the \$5 a day would not include his railroad fare.

Professor MOORE. Yes; it does not.

The CHAIRMAN. What does that include?

Professor MOORE. His meals and lodging. But this item of \$1,300 expense includes his railroad fare and his \$5 per day allowance.

The CHAIRMAN. Exactly; the \$1,312 is the aggregate of all?

Professor MOORE. Yes, sir; the aggregate of all.

The CHAIRMAN. That is the maximum, \$5 a day for subsistence?

Professor MOORE. Subsistence and lodging.

The CHAIRMAN. Well, yes; subsistence. But you do not have any limit on the transportation?

(Witnesses: Moore, Zappone.)

Professor MOORE. No; that is whatever it may be, except that it is limited to one first-class ticket by the most direct route. I will say that we do not allow our lower-grade observers but \$3 a day.

The CHAIRMAN. The regulations allow \$5 a day?

Professor MOORE. Yes; but to assistant observers we only allow \$3 a day.

Mr. ZAPPONE. The number of employees in the Weather Bureau is about 1,700, Mr. Chairman, as stated by Professor Moore, and the total amount expended for traveling expenses during the year 1906 was \$14,282.21. You can see that the two inspectors used up nearly one-sixth of that—probably one-seventh. I merely mention this to show that there was very little traveling by the other employees of the Bureau, for so large a bureau.

The CHAIRMAN. The employees of the Bureau ought to be so distributed that there would not be much occasion for any traveling.

Professor MOORE. It must be.

The CHAIRMAN. That is, you could not keep moving your men around all the time. You would not be getting any service and would be involving the Government in expense.

Professor MOORE. No, sir; we do not do it unnecessarily.

The CHAIRMAN. "Reimbursement for station and field expenses." What is that for?

Mr. ZAPPONE. Probably I had better explain that.

Professor MOORE. Yes.

Mr. ZAPPONE. Nearly all of the stations outside have many small incidental expenses which must be paid at once—that is, paid in cash—as merchants do not care to wait for their money.

Professor MOORE. Things paid for that are used by the Government—drayage on a box of goods, or something like that, you know.

Mr. ZAPPONE. Yes; drayage, freight, express charges, gas, matches, brooms, possibly a small charge for sending long-distance messages, and so forth.

Professor MOORE. Breaking a pane of glass, for instance.

Mr. ZAPPONE. Such things have to be paid for at once.

Professor MOORE. This is all expended for Government purposes.

The CHAIRMAN. Do you not keep these stations supplied with stationery?

Professor MOORE. Yes; but in case of emergency they may have to purchase articles at times.

Mr. ZAPPONE. If his supply became exhausted, the observer could not wait to get out a weather map for an article of stationery from Washington, such as a piece of stencil paper, for instance, which he uses on that work.

Professor MOORE. We might go over one of these for an illustration.

The CHAIRMAN. That might be a good idea, and spread it right on the record.

Mr. ZAPPONE. Of course the great majority of expenses are paid by direct settlement from Washington; only the small incidental and emergency expenses are paid by observers.

The CHAIRMAN. This is what the men in the field actually pay out themselves and the Government reimburses them for?

Professor MOORE. Yes. At New York there is \$280.

(Witnesses: Moore, Zappone.)

The CHAIRMAN. For the purpose, suppose we take Theodore F. Drake. I do not know where he is. He is on page 17. He has a salary of \$853.34 and reimbursement for field expenses \$337.05. We will take about three of these and go over them.

Professor MOORE. That was down in the West Indies, was it not; was not that man Drake down there?

Mr. ZAPPONE. I think so. That was in connection with the maintenance of a station in the West Indies. At almost all those stations the observers had to pay for everything in cash. The people of that country did not understand our methods; were not willing to wait for their money.

Professor MOORE. In Cuba also the men had to pay for things in cash.

The CHAIRMAN. Take Ashley.

Professor MOORE. That is in Honolulu. Those are cases where a man has unusual expenses. That does not apply to the stations in this country.

Mr. FLOOD. Let us take an ordinary case.

Professor MOORE. Oh, those are all right; but I mean to say these expenses would not be typical.

The CHAIRMAN. Take one that would be typical.

Mr. ZAPPONE. Take Edward A. Beals. His name is the sixth on page 13. He is at Portland, Oreg., a very large station. The amount is \$97.32.

The CHAIRMAN. "Necessary traveling expenses, \$104. Reimbursement for station and field expenses, \$97.32." Let us have that one.

Mr. ZAPPONE. Then take William T. Blythe, on same page, \$118.17. I am taking these men because the amounts are large.

The CHAIRMAN. Where is your New York man?

Mr. ZAPPONE. Near the beginning, there, E. H. Emery.

The CHAIRMAN. Take him; \$280.35. Those would be typical, would they?

Mr. ZAPPONE. Yes, I think so.

The CHAIRMAN. You can simply present us with information as to those?

Mr. ZAPPONE. In many cities the gas companies require the payment of their bills in a limited time, or the discount is lost, which means a cash payment by the observer.

Professor MOORE. There is no reason why you should not take this for Honolulu, and so forth.

Mr. ZAPPONE. The observers make cash payments so as not to cripple the Government work in any way.

(Illustrative accounts for reimbursements of stations and field expenses in the cases called for above.)

(Witness: Moore.)

Reimbursement account of Edward A. Beals for station and field expenses during the fiscal year 1906.

[For reimbursement of expenses (other than traveling) incurred at Portland, Oreg.]

1905.		
July	5. Express charges	\$1.10
	5. Drayage charges, post-office to office	.25
	25. Drayage charges, post-office to office	.25
Aug.	1. Recasting three rollers, at 90 cents each	2.70
	3. Express charges	.60
	9. Cleaning river gauge at Tualitin, Oreg., for the job	.50
	14. Drayage charges, post-office to office, for the job	.25
	15. Freight charges	.90
	15. Drayage charges, office to depot, for the job	.50
	18. Drayage charges, post-office to office, for the job	.50
	25. Repairing river gauge, Newport, Wash., for the job	2.00
	26. Express charges	.85
	28. Drayage charges, post-office to office, for the job	.50
Sept.	5. Drayage charges, post-office to office, for the job	.50
	7. 5 gallons of benzine, at 26 cents per gallon; 1 gallon motor oil, at 25 cents per gallon	1.55
	7. 1 pint red ink, at \$1.80 per quart; 2 quarts copying ink, at \$1 per quart; 1 quart writing fluid, at 85 cents per quart; 1 bottle water-proof ink	4.00
	12. Drayage charges, post-office to office, for the job	.25
	13. Framing cloud picture, for the job	2.25
	18. Drayage charges, post-office to office, for the job	.25
	18. 100 street-car tickets, for the lot	4.50
	20. Drayage charges, post-office to office, for the job	.25
	26. Drayage charges, post-office to office, for the job	.50
	27. Drayage charges, post-office to office	.25
Oct.	4. Drayage charges, post-office to office, for the job	.25
	6. Drayage charges, post-office to office	.25
	18. Express charges	1.75
	29. Type for use in connection with printing work, for the lot	3.52
Nov.	2. Drayage charges, post-office to office	.25
	6. One roll friction tape for use in installing met'l instruments	.25
	8. Express charges	.70
	9. Drayage charges, post-office to office	.25
	20. Express charges	1.75
	20. Express charges	1.50
Dec.	1. Drayage charges, post-office to office, for the job	.75
	5. 5 gallons benzine, at 24 cents per gallon	1.20
	6. One oak shelf for barograph, for the job	.50
	6. Painting roof apparatus, Port Townsend, Wash., for the job	2.80
	6. Reeving halyards for storm-warning tower, Astoria, Oreg., for the job	1.00
	8. Drayage charges, post-office to office, for the job	.50
	11. Drayage charges, post-office to office, for the job	.50
	16. Drayage charges, post-office to office, for the job	.25
	18. Drayage charges, post-office to office, for the job	.25
	19. Drayage charges, post-office to office, for the job	.25
	20. Express charges	.40
1906.		
Jan.	9. Drayage charges, post-office to office, for the job	.50
	12. Express charges	1.75
	18. Freight charges	3.49
	18. Drayage charges, depot to office, for the job	.50
	31. Repairs to stapling machine, for the job	.60
	31. Two packages insulating tape, at 25 cents each	.50
	31. Four clamps for casting box, for the lot	.75
	31. Repairing rain gauge, for the job	1.00
Feb.	5. 100 street-car tickets, for the lot	4.50
	7. 5 pounds type (leaders)	2.72
	9. Express charges	.50
	15. Drayage, post-office to office	.25

(Witness: Moore.)

1906.		
Feb. 19.	Drayage charges, post-office to office, for the job	\$0.50
20.	Drayage charges, post-office to office, for the job.....	.25
23.	Drayage charges, post-office to office, for the job.....	.25
24.	Drayage charges, post-office to office, for the job.....	.25
Mar. 7.	Freight charges.....	3.30
19.	Drayage charges, post-office to office, for the job.....	.25
20.	Drayage charges, post-office to office, for the job.....	.25
23.	Express charges.....	.85
24.	Drayage charges, post-office to office, for the job.....	.25
28.	Drayage charges, post-office to office, for the job.....	.50
29.	Drayage charges, post-office to office, for the job.....	.25
Jan. 25.	Express charges from Condon to Clem.....	.95
Mar. 23.	Express charges from Portland to Williams, Oreg.....	.85
Apr. 2.	Express charges from Portland to Hood River, Oreg.....	.60
7.	4 foot sticks for printing Climatological Reports, for the lot....	.50
9.	Express charges from Roseburg to Portland, Oreg.....	1.80
11.	Express charges from Portland to Albany, Oreg.....	.60
11.	3 pounds type, assorted, at 93 cents per pound.....	2.79
13.	Express charges from Portland to Sumpter, Oreg.....	3.20
16.	Drayage charges, post-office to office, for the job.....	.50
23.	Repairing one rain gauge, for the job.....	1.00
26.	Express charges, Ashland to Portland, Oreg.....	1.00
May 15.	Repairs to Underwood typewriter, for the job.....	1.00
25.	1 pair western climbers, 1 set straps, 1 tool belt and safety, for the lot	5.85
25.	Drayage charges, post-office to office, for the job.....	.25
28.	Drayage charges, post-office to office, for the job.....	.25
June 5.	Express charges, Portland to Klauath Falls, Oreg.....	4.80
16.	Drayage charges, post-office to office, for the job.....	.25
19.	Repairing one shelter, 50 cents; packing two telegraph tables for shipment, for the job (\$1.60).....	2.10
23.	Drayage charges, post-office to office, for the job.....	.50
29.	Messenger service in delivering weather telegrams to Capt. Baker, engaged in raising steamer <i>Elder</i>.....	.50
Total.....		97.32

Received at Washington, D. C., the — day of —, 190—, of A. Zappone, disbursing clerk, United States Department of Agriculture, ninety-seven and $\frac{32}{100}$ dollars, in full of the above account.

\$97.32.

(Signed in duplicate.)

EDWARD A. BEALS.

Reimbursement account of W. T. Blythe for station and field expenses during the fiscal year 1906.

[For reimbursement of expenses (other than traveling) incurred at Indianapolis, Ind.] 1905.

July 6.	1 gallon oil, 40 cents, and 2 gallons benzine, 30 cents; for the lot	\$0.70
14.	Drayage charges from post-office to office.....	.25
15.	Drayage charges from post-office to office.....	.25
17.	Drayage charges from post-office to office.....	.25
19.	Drayage charges from office to post-office and depot .....	.50
20.	Drayage charges from post-office to office.....	.25
26.	One steel drill .....	.13
Aug. 3.	Ice during July, at \$1.50 per month.....	1.50
3.	Drayage charges from post-office to office.....	.35
7.	Drayage charges from post-office to office.....	.25
9.	Drayage charges from post-office to office.....	.25
10.	Drayage charges from post-office to office.....	.50
14.	Drayage charges from post-office to office.....	.25
21.	Labor and material in constructing a platform for rain and snow gages.....	8.41
23.	Drayage from office to depot and from post-office.....	.50
26.	Drayage charges from post-office to office.....	.75
30.	Drayage charges to and from post-office.....	.50
31.	Express charges.....	.30

(Witness: Moore.)

1905.		
Sept.	1. Drayage charges from post-office to office	\$0. 25
	2. Drayage charges from post-office to office.....	. 35
	5. Drayage charges from depot to office.....	. 50
	5. Cutting cards and paper.....	. 20
	5. Ice during August, at \$1.50 per month.....	1. 50
	7. Making one zinc etching, for the job.....	1. 80
	8. Cleaning and repairing office clock, for the job.....	1. 25
	12. Drayage charges from office to depot.....	. 25
	13. Drayage charges from post-office to office.....	. 25
	15. Drayage charges from post-office to office.....	. 25
	19. Drayage charges to and from post-office.....	. 70
	27. 2 gallons beuzine, for the lot.....	. 30
	30. Ice during September, 1905, at \$1.50 per month.....	1. 50
Oct.	10. Drayage charges, depot to office.....	. 25
	11. Drayage charges, depot to office, for the job.....	. 35
	23. Drayage charges, office to post-office.....	. 25
	25. Drayage charges to and from post-office, for the job.....	. 60
	27. 2 gallons benzine, for the lot.....	. 30
	28. Drayage charges, at Topeka, Ind., to depot, for the job.....	. 20
	30. Express charges from Topeka, Ind., to Lima, Ind.....	. 80
Nov.	1. Ice during October, for the month.....	1. 50
	4. Recasting 3 rollers, for the job.....	2. 70
	8. Express charges from Indianapolis to Valparaiso.....	. 45
	16. Drayage charges from post-office, for the job.....	. 25
	17. Drayage charges from depot.....	. 25
	20. Drayage charges from post-office, for the job.....	. 35
	22. Drayage charges to post-office, for the job.....	. 25
	24. Drayage charges from post-office.....	. 25
	27. Drayage charges to post-office.....	. 25
	28. Drayage charges from post-office, for the job.....	. 35
Dec.	1. Drayage charges from post-office, for the job.....	. 25
	5. Ice during November, for the month.....	1. 50
	6. Drayage charges from post-office, for the job.....	. 25
	9. Drayage charges from depot, for the job.....	. 25
	15. Drayage charges from post-office, for the job.....	. 35
	19. Drayage charges from post-office, for the job.....	. 25
	23. Drayage charges from post-office and to depot, for the job.....	. 60
	23. Drayage charges to post-office, for the job.....	. 25
	27. Drayage charges to post-office, for the job.....	. 35
	28. Drayage charges from and to post-office, for the job.....	. 50
	28. Washing 33 towels.....	. 66
	30. Cutting paper, for the job.....	. 10
	31. Ice during December, for the month.....	1. 50
1906.		
Feb.	9. For making two zinc-etched plates, charts of Indiana and Mis- souri, for the job.....	8. 00
Jan.	6. For repairing 4 clamps, for the job.....	. 75
	12. Drayage, 3 sacks mail to post-office, for the job.....	. 25
	13. Drayage, 1 box from railroad depot.....	. 25
	13. Drayage, 1 sack to post-office and 4 sacks from post-office, for the job.....	. 60
	15. Drayage, 4 sacks from post-office, for the job.....	. 35
	23. Drayage, 1 sack to post-office.....	. 25
	26. Express charges on instrument shelter and rain-gauge support, Indianapolis to Auburn, Ind.....	1. 00
	30. One-fourth tube printer's ink, azure blue.....	. 38
	31. Drayage, 2 sacks from post-office, for the job.....	. 25
Feb.	7. Ice during the month of January.....	1. 50
	7. Drayage, 4 sacks from post-office, for the job.....	. 35
	7. Drayage, 1 box to railroad depot.....	. 25
	8. 2 gallons benzine, at 15 cents per gallon.....	. 30
	8. Drayage, 4 sacks from post-office, for the job.....	. 35
	9. Packing and weighing for shipment 4 boxes battery material, and drayage charges on same, for the job.....	1. 50
	9. Drayage, 9 sacks, from post-office, for the job.....	. 75
	9. Drayage, 9 boxes, from railroad depot, for the job.....	. 75
	12. Drayage, 1 sack and 1 package, to post-office, for the job.....	. 25

(Witness: Moore.)

	1906.		
Feb.	15.	Drayage, 4 sacks, from post-office and 4 boxes to railroad depot, for the job.....	\$0. 70
	20.	Drayage, 2 sacks to post-office and 3 sacks from post-office, for the job.....	. 60
	21.	Drayage, 7 sacks from post-office and 1 sack to post-office, for the job.....	. 75
	23.	Drayage, 1 sack, from post-office.....	. 25
	27.	Drayage, 3 sacks to post-office, for the job.....	. 35
Mar.	2.	Drayage, 1 sack to and 1 sack from post-office, for the job.....	. 50
	5.	Ice during the month of February, 1906.....	1. 50
	8.	Drayage, 1 sack, from post-office.....	. 25
	14.	Drayage, 1 box, from railroad depot.....	. 25
	15.	5,000 cards, index, for the lot.....	4. 25
	15.	Drayage, 2 sacks, from post-office.....	. 25
	20.	Drayage, 2 sacks from post-office and 1 sack to post-office, for the job.....	. 50
	26.	Drayage, 3 sacks from post-office and 1 box to railroad depot, for the job.....	. 50
	26.	3 gallons distilled water for storage battery.....	. 25
	26.	Drayage, 2 boxes and 1 package from railroad depot.....	. 50
	26.	Drayage, 1 sack, from post-office.....	. 25
	31.	Ice during the month of March, 1906.....	1. 50
Apr.	5.	Drayage charges, post-office to office.....	. 25
	9.	Two zinc etchings, charts of Indiana, for the lot.....	2. 04
	12.	Express charges.....	. 75
	12.	Drayage charges, depot to office.....	. 25
	14.	Drayage charges, post-office to office.....	. 25
	14.	Drayage charges, office to post-office.....	. 25
	19.	Two electroplates, stubs for map work, for the lot.....	. 50
	20.	Drayage charges, depot to office.....	. 25
	27.	Drayage charges, p. o. to office and office to p. o., for the job.....	. 90
	28.	1 box in which to ship addressograph.....	. 50
	28.	Drayage charges to and from post-office, for the job.....	. 50
	28.	Two gallons benzine.....	. 30
May	4.	Ice for April.....	1. 50
	5.	Drayage charges, depot to office, for the job.....	. 25
	8.	Repairs to addressograph, for the job.....	6. 60
	8.	Express charges.....	. 75
	11.	Drayage charges, office to p. o. and depot, for the job.....	. 50
	12.	Drayage, from post-office to office.....	. 25
	17.	Washing 30 towels, for the job.....	. 45
	21.	Cleaning clock, for the job.....	1. 00
	25.	Freight charges.....	. 25
	25.	Drayage charges from post-office to office.....	. 25
	31.	Express charges.....	. 80
June	2.	Express charges.....	. 80
	2.	Ice during May (by the month).....	1. 50
	4.	Drayage charges, depot to office.....	. 25
	7.	Drayage charges, post-office to office, for the job.....	. 35
	13.	Repairs to anemometer, for the job.....	. 25
	14.	Drayage charges, office to post-office.....	. 25
	19.	Express charges, for the job.....	. 35
	19.	Repairs to printing press, for the job.....	6. 50
	22.	Drayage charges, post-office to office, for the job.....	. 25
	23.	Drayage charges, office to post-office, for the job.....	. 25
	26.	Drayage charges, at Worthington, Ind., for the job.....	. 35
	26.	Drayage charges, office to post-office, for the job.....	. 45
	28.	Express charges.....	2. 25
	30.	Ice during June (by the month).....	2. 00
	30.	Recasting printing rollers, for the job.....	2. 70
	30.	Washing 13 towels, for the lot.....	. 20
	30.	2 electroplates, stubs for map work, for the lot.....	. 80
	30.	Repairs to three pins, used in chalk-plate work, for the job.....	. 30
	30.	Cleaning and repairing typewriter, for the job.....	6. 10

(Witness: Moore.)

Received, at Washington, D. C., the — day of —, 190—, of A. Zappone, disbursing clerk, United States Department of Agriculture, one hundred eighteen and $\frac{17}{100}$ dollars, in full of the above account.

\$118.17.

(Signed in duplicate.)

W. T. BLYTHE.

Reimbursement account of E. H. Emery for station and field expenses during fiscal year 1906.

[For reimbursement of expenses (other than traveling) incurred at New York, N. Y.]

1905.

July	11.	100 special-delivery stamps for Mascart report, at 10 cents per stamp -----	\$10.00
	21.	Drayage charge, post-office to office -----	.25
	27.	Drayage charges, post-office to office, for the job -----	1.50
	28.	1 gallon benzine -----	.20
	28.	Drayage charges, post-office to office, for the job -----	1.00
	31.	Postage, July, ocean meteorology -----	.59
	31.	4 street-car fares visiting ships in connection with work in ocean meteorology, at 5 cents per fare -----	.20
	31.	62 street-car fares going to and from Mercantile Exch., New York City, and substation in Brooklyn, N. Y., at 5 cents per fare -----	3.10
Aug.	5.	Drayage charges, post-office to office, for the job -----	.75
	10.	Drayage charges, post-office to office, for the job -----	.75
	14.	Drayage charges, post-office to office, for the job -----	1.50
	23.	100 mailing tubes, at 2 cents each -----	2.00
	23.	Drayage charges, post-office to office, for the job -----	.50
	23.	1 gallon benzine -----	.20
	28.	2 electrotype headings for weather map, at 74 cents each -----	1.48
	29.	Drayage charges, post-office to office, for the job -----	1.50
	31.	Postage, August, ocean meteorology -----	.31
	31.	5 street-car fares, at 5 cents each, and 2 ferry fares, at 3 cents each, visiting ships in connection with work in ocean meteorology -----	.31
	31.	62 street-car fares going to and from Mercantile Exchange, New York City, and substation in Brooklyn, N. Y., at 5 cents per fare -----	3.10
Sept.	2.	28 32-c. p. lamps at 27 cents each, and 6 50-c. p. lamps at 27 cents each -----	9.18
	5.	Drayage charges, post-office to office -----	.25
	8.	Drayage charges, post-office to office, for the job -----	2.50
	14.	Drayage charges, post-office to office, for the job -----	.75
	22.	1 gallon benzine -----	.20
	27.	Drayage charges, post-office to office -----	.75
	28.	1 font 10-pt. gothic type (5½ pounds) and 14 feet brass rule, for the lot -----	4.43
	28.	Disseminating Weather Bureau reports, from September 18 to September 23, 1905, and from September 25 to September 30, 1905, at 20 cents per day (12 days) -----	2.40
	30.	Postage, September, ocean meteorology -----	.12
	30.	7 street-car fares, visiting ships in connection with work in ocean meteorology, at 5 cents per fare -----	.35
	30.	60 street-car fares going to and from Mercantile Exchange, New York City, and substation in Brooklyn, N. Y., at 5 cents per fare -----	3.00
	30.	Clean towel service, July, August, and September, at \$1 per month -----	3.00
	30.	Ice during July, August, and September, at \$2.00 per month -----	6.00
	30.	Electric light for the display of storm warnings at Long Branch, N. J., from July 1 to September 30, 1905, both dates inclusive; July meter, \$1.00; August meter, \$1.00; September meter, \$1.00, as per bill attached -----	3.00
Oct.	12.	Drayage charges, post-office to office -----	.50
	21.	Drayage charges, post-office to office -----	.25
	23.	2 rubber stamps, for the lot -----	.65
	28.	Drayage charges, post-office to office -----	.25

(Witness: Moore.)

1905.	
Oct.	31. Postage, October (ocean meteorology)..... \$0.10
	31. 5 street-car fares, visiting ships in connection with work in ocean meteorology, at 5 cents per fare..... .25
	31. 62 street-car fares, going to and from Mercantile Exchange, New York City, and substations in Brooklyn, at 5 cents per fare..... 3.10
	31. Disseminating Weather Bureau reports, from October 2, 1905, to October 31, 1905, inclusive, except October 8, 15, 22, and 29—26 days, at 20 cents per day..... 5.20
Nov.	1. Recasting 3 rollers, at 75 cents each..... 2.25
	2. 1 gallon benzine..... .20
	8. Drayage charges, post-office to office..... .75
	11. 100 special-delivery stamps, at 10 cents each..... 10.00
	16. Drayage charges, post-office to office..... .75
	17. 1 gross white crayons, 10 cents; 1 gross red crayons, \$1.50, for use at substation in Brooklyn, N. Y..... 1.60
	17. 1 cake of blue stencil ink, 13 cents; 1 cake of red stencil ink, 23 cents; 4 stencil brushes, at 15 cents each, 60 cents, for use at substation in Brooklyn, N. Y..... .96
	20. Cleaning thermograph clock, attached to instrument in use at station..... 1.00
	27. Drayage charge, post-office to office..... 1.50
	30. Postage, November (ocean meteorology)..... .05
	30. 7 street-car fares, visiting ships in connection with work in ocean meteorology, at 5 cents per fare..... .35
	30. 60 street-car fares, going to and from Mercantile Exchange, New York City, and substation in Brooklyn, N. Y., at 5 cents per fare..... 3.00
	30. Disseminating Weather Bureau reports from November 2, 1905, to November 30, 1905, inclusive, except November 4, 11, 18, 25, and 30—16 days at 20 cents per day and 8 days at 25 cents per day..... 5.20
Dec.	4. 1 gallon benzine, 20 cents, and 1 quart machine oil, 25 cents..... .45
	7. Drayage charges, post-office to office..... 1.00
	9. Drayage charges, post-office to office..... .25
	12. Drayage charges, post-office to office..... .25
	14. Drayage charges, post-office to office..... .75
	18. Drayage charges, post-office to office..... .25
	31. Postage, December (ocean meteorology)..... .13
	31. 2 street-car fares, visiting ships in connection with work in ocean meteorology, at 5 cents per fare..... .10
	31. 62 street-car fares, going to and from Mercantile Exchange, New York City, and substation in Brooklyn, N. Y., at 5 cents per fare..... 3.10
	31. Disseminating Weather Bureau reports, from December 1 to December 30, 1905, inclusive, except December 3, 10, 17, 24, and 25, 21 days at 20 cents per day, and 4 days at 25 cents per day..... 5.20
	31. Clean-towel service, October, November, and December, at \$1.00 per month..... 3.00
	26. Electric light for night storm warnings at Governors Island, N. Y., October 1 to December 26, 1905, inclusive, 98,300 watt hours, at 5 cents per watt hour..... 4.92
	31. Electric current for night storm warnings at Long Branch, N. J., October, November, and December, 1905, 84,800 watt hours, at 10 cents per watt hour..... 8.48
1906.	
Jan.	6. Drayage charges, post-office to office, for the job..... 1.50
	12. 80 lbs. of stereotype metal, at 7½ cents a pound..... 6.00
	13. 1 gallon of benzine..... .20
	16. Drayage charges, post-office to office, for the job..... .50
	20. Repairs to Remington typewriter, for the job..... 1.25
	23. Repairs to roll-top desk, for the job..... 2.50
	24. Drayage charges, post-office to office..... 2.00
	31. Postage, January..... .17

(Witness: Moore.)

1906.		
Jan.	31. 62 street-car fares, going to and from Mercantile Exchange, New York City, to substation in Brooklyn, N. Y., at 5 cents per fare	\$3.10
	31. Disseminating Weather Bureau reports from January 2 to January 31, 1906, inclusive, except January 7, 14, 21, and 28—26 days, at 20 cents per day	5.20
Feb.	7. Leather belt, with safety strap	1.80
	9. Drayage charges, post-office to office	.50
	14. Drayage charges, post-office to office	1.25
	15. 1 gallon of benzine	.20
	15. Recasting 3 rollers, at 75 cents each	2.25
	19. Drayage charges, post-office to office	.25
	24. Drayage charges, post-office to office, for the job	1.00
	28. Altering stereotype heading for weather map, for the job	.60
	28. 56 street-car fares, going to and from Mercantile Exchange, New York City, to substation in Brooklyn, N. Y., at 5 cents per fare	2.80
	28. Disseminating Weather Bureau reports from February 1 to February 28, 1906, inclusive, except February 4, 11, 12, 18, 22, 25—22 days, at 20 cents per day	4.40
Mar.	5. 2 stereotype headings for map, at \$1.36 each	2.72
	5. Drayage charges, post-office to office	1.25
	19. 1 gallon of benzine	.20
	19. Drayage charges, post-office to office, for the job	.50
	28. Drayage charges, post-office to office, for the job	1.00
	31. Postage, March	.44
	31. 8 street-car fares and 6 ferry fares, visiting ships in connection with work in ocean meteorology	.63
	31. 62 street-car fares, going to and from Mercantile Exchange, New York City, to substation in Brooklyn, N. Y., at 5 cents per fare	3.10
	31. Disseminating Weather Bureau reports from March 1 to March 31, 1906, inclusive, except March 4, 11, 18, 25, and 31—26 days, at 20 cents per day	5.20
	31. Clean-towel service, January, February, and March, at \$1 per month	3.00
	31. Time service furnished by the Western Union Telegraph Co. from January 1, 1901, to March 31, 1906, inclusive, 3 months at the rate of \$12 per annum	3.00
	31. Electric current for night storm warnings at Long Branch, N. J., January, February, and March, 188,700 watt-hours, at 10 cents per watt-hour	18.87
	Electric current furnished during the period from December 27, 1905, to March 31, 1906, both dates inclusive, for display of night storm warnings at Governor's Island, New York, 157,600 watt-hours, at 4 cents per watt-hour, as per statement attached	6.30
Apr.	3. Repairs to printing press, for the job	3.68
	3. Printing daily weather map, for the job	4.75
	6. 1 quart of machine oil	.25
	16. Drayage charges, post-office to office	1.00
	17. One gas stove with connections	6.00
	26. One bench covered with sheet iron	5.00
	27. 8 ounces of type, 6-point, 56 cents; 69 pieces of brass rule, \$1.54; 8 yards furniture, 19 cents; 1 pound of leads, 29 cents	2.58
	30. Postage, April	.10
	30. 8 street-car fares and 6 ferry fares, visiting ships in connection with work in ocean meteorology	.64
	30. 60 street-car fares, going to and from Mercantile Exchange, New York City, and substation in Brooklyn, N. Y., at 5 cents per fare	3.00
	30. Disseminating Weather Bureau reports, from April 2 to April 30, 1906, inclusive, except April 8, 15, 22, 29, and 30—24 days—at 20 cents a day	4.00

(Witness: Moore.)

1906.		
May	2, 1 gallon of benzine	\$0. 20
	2. Drayage charges, post-office to office.....	1. 00
	16. Drayage charges, post-office to office.....	. 50
	24. Drayage charges, post-office to office.....	. 75
	28. Drayage charges, post-office to office.....	. 75
	31. Postage, May.....	1. 55
	31. 8 street-car fares and 2 ferry fares, visiting ships in connection with work in ocean meteorology.....	. 40
	31. 62 street-car fares, going to and from Mercantile Exchange, New York City, to substation in Brooklyn, N. Y., at 5 cents per fare.....	3. 10
	31. Disseminating Weather Bureau reports, from May 2 to May 24, 1906, inclusive, except May 6, 13, 19, and 20—19 days—at 20 cents a day.....	3. 80
June	7. 1 gallon benzine, 20 cents; 1 quart machine oil; 25 cents.....	. 45
	8. Drayage charges, post-office to office.....	1. 00
	11. Drayage charges, post-office to office.....	. 50
	18. Drayage charges, post-office to office.....	1. 50
	29. Recasting 3 rollers, at 75 cents per roller.....	2. 25
	30. Postage, June.....	. 44
	30. Ice, June 9 to June 30, inclusive, for the lot.....	1. 70
	30. 2 street-car fares, visiting ships in connection with work in ocean meteorology.....	. 10
	30. 60 street-car fares, going to and from Mercantile Exchange, New York City, to substation in Brooklyn, N. Y., at 5 cents per fare.....	3. 00
	30. Clean towel service, April, May, and June, at \$1 per month.....	3. 00
	30. Electric current furnished during the period from April 1 to June 30, 1906, both dates inclusive, for display of night storm warnings at Governors Island, N. Y., 18,800 watt hours, at 4 cents per watt hour.....	. 75
	30. Electric current for night storm warnings at Long Branch, N. J., April, 1906, 21,100 watt hours, at 10 cents per watt hour, \$2.11; for month of May, 1906, meter, \$1; for month of June, 1906, meter, \$1.....	4. 11
	30. Time service furnished by Western Union Telegraph Co., from April 1, 1906, to June 30, 1906, inclusive, 3 months, at the rate of \$12 per annum.....	3. 00
Total.....		280. 35

Received at Washington, D. C., the — day of —, 190—, of A. Zappone, disbursing clerk, United States Department of Agriculture, two hundred eighty and ³⁵/₁₀₀ dollars, in full of the above account.

\$280.35.

(Signed in duplicate.)

E. H. EMERY.

The CHAIRMAN. Who has the determining of the size of this force—that is, who settles those questions, you or—

Professor MOORE. Yes; the Chief of the Bureau.

The CHAIRMAN. The Chief of the Bureau?

Professor MOORE. Yes; and the assignments are usually made by him, independently. Of course, if the Secretary cares to, he may direct. He does not usually care to enter into those details.

The CHAIRMAN. The clerks, on page 7—the clerks of classes 2, 3, and 1.

Professor MOORE. Yes.

The CHAIRMAN. At \$1,000 and under, are all subject to these instructions that you have been giving us with reference to the character of their duties, and their direction?

Professor MOORE. Yes, sir.

The CHAIRMAN. And that same thing is true of those mentioned on page 8?

(Witnesses: Moore, Zappone.)

Professor MOORE. The entire force; everybody except those getting less than \$25 per month. We do not try to keep strict account of them. They only give a portion of each day, a few minutes each day, to the work.

Mr. SAMUEL. I notice you have rainfall observers at different salaries. What is the distinction?

The CHAIRMAN. What page is that on?

Mr. SAMUEL. On page 25 or page 24.

Professor MOORE. Some of them are cooperative observers that usually work for nothing, and they get paid whenever a rainfall occurs. They will telegraph it whenever a rainfall occurs, and they are paid for what they actually do. They get 25 cents an observation, but do not telegraph unless there is a rainfall. Some telegraph whether there is any or not, because even if there is none at some stations it is important for us to know it.

Mr. SAMUEL. This is at so much per month. What is the distinction between the observers at \$5, at \$4, and at \$3 per month? Is the \$5 man better qualified, or what is the reason of the distinction?

Professor MOORE. No, sir. In one case a man may have to walk a little farther to send his observation, or in another case he may send only when there is rainfall. There are many qualifying causes that determine that. When a man has to carry his observations to a telegraph office to send them and has to ride a bicycle, we take that into account. It depends on how much travel a man has to do to send his observations.

Mr. SAMUEL. Some observers get 50 cents an observation and some 25 cents an observation.

Professor MOORE. Do you find any at 50 cents?

Mr. SAMUEL. Yes; and some at 20 cents.

Mr. ZAPPONE. The 50-cent charge is on account of the distance of the river gauge from the man.

Professor MOORE. In some instances he has to travel quite a distance.

Mr. FLOOD. What does that mean, per month or per year?

Professor MOORE. That is what they are paid a month.

The CHAIRMAN. Pages 23 to 29, the expenditures will represent the sums paid to these small observers?

Professor MOORE. Yes. On page 24, Mr. Chairman, you will notice the classified day laborers. Those day laborers are men employed in building operations.

The CHAIRMAN. Only temporarily employed?

Professor MOORE. We have a permit. Some are day laborers, some are carpenters, and some are bricklayers. We have a dispensation from the civil service that enables us to employ them not to exceed one hundred and eighty days a year in our building operations. We were compelled to build at Mount Weather by day labor; we could not get civil-service employees to go up there.

The CHAIRMAN. These men are employed only a short time each?

Professor MOORE. Yes; and that is the actual rate they got.

Mr. ZAPPONE. Will you explain about the closed season to navigation when the rivers and lakes are frozen—that is, why rainfall, river, and storm warning observers work only for a portion of the year?

(Witnesses: Moore, Zappone.)

Professor MOORE. Yes. You will observe on page 24 the first special rainfall observer is at \$7.50 per month. He got only \$41.25 for the whole year. That man was at some place where we only needed his report for a portion of the year.

The next rainfall observer is at \$5 per month. To explain, there is a slight variation in the salary paid to these rainfall observers of a few dollars a month, depending on the trouble a man is put to and his distance from the rain gauge and river gauge, and his distance from the office; but the salaries are small and only continue for a portion of the year.

The CHAIRMAN. Are the clerks mentioned on pages 7, 8, 9, and 10 employed in the Department in Washington?

Professor MOORE. Entirely so.

The CHAIRMAN. They all represent the local force?

Professor MOORE. Yes.

The CHAIRMAN. Such miscellaneous supplies as are itemized, or as are detailed on page 11, are those purchased as the result of public advertising or informal bidding?

Professor MOORE. It depends. If the supply is something that could be foreseen, it has been provided for in the regular departmental contracts. If it is something special that is not included in the Department's contracts, a special bid has been made for it and it has gone before the Bureau board instead of the departmental board.

The CHAIRMAN. I would suggest that when the next list is made up, if it can be done without too much trouble, we should have supplies in one place and services in another. It is impossible to tell which is which here.

Professor MOORE. I think these are all supplies here.

Mr. ZAPPONE. They are all supplies—not services. Personal services and salaries will be found in another table. In this list will be found only contract labor.

The CHAIRMAN. I would differentiate between the two. We might want to differentiate between the supplies proper and the labor.

Mr. ZAPPONE. There may be some others that you will want to differentiate between, and I will be glad for your suggestions.

The CHAIRMAN. Yes. Page 12 contains items of the same character.

Professor MOORE. Yes.

Mr. ZAPPONE. Before you leave page 11, I would like to say, as to the largest item in the list, the National Electric Supply Company, \$3,358.07, that nearly one-half of that amount is for electrical supplies, which were under the regular annual contract. This is a local firm.

The CHAIRMAN. Then half of the entire list on page 11 is for material purchased as the result of public advertisement under the regular contract?

Professor MOORE. Yes, sir; as the result of public advertisement and under the regular contract.

Mr. ZAPPONE. In the back part of this report you will find, on page 293, their regular contract. The amount of it is about \$4,000.

(At 4.30 o'clock p. m. the committee adjourned until Monday, January 7, 1907, at 10 o'clock a. m.)

(Witness: Moore.)

JANUARY 7, 1907.

STATEMENT OF PROF. WILLIS L. MOORE, CHIEF OF THE WEATHER BUREAU—Continued.

Mr. SAMUEL. You have a number of statements, I believe, that you desire to make in reference to some questions raised at the last meeting.

Professor MOORE. I have nothing further to introduce excepting that I would like to place in the record here some forms that have a bearing on my testimony of yesterday in regard to the promotion system of the Weather Bureau. I would therefore file Exhibits A and B at this time, Exhibit A being a recommendation for the absolute appointment of messenger in the Weather Bureau, which appointment was determined by the reports received on the form marked B. I am filing these two forms to show the process by which we test a good and desirable employee. B is the report of the official in charge of the station at Scranton, and after five months of trial he renders the fifth monthly report on the probationary employee, showing that he was an intelligent person; that his work had been of a high standard of excellence.

Mr. SAMUEL. If there is no objection that will be placed in the record.

(Following are the Exhibits A and B referred to:)

A.

UNITED STATES DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
Washington, D. C., December 22, 1906.

SIR: I have the honor to recommend the absolute appointment of Mr. Howard E. Oakley, of Pennsylvania, as a messenger boy, at \$360 per annum, station roll, to take effect on January 1, 1907, on which date he will have served a probationary period of six months.

The necessary papers are herewith.

Very respectfully, your obedient servant,

WILLIS L. MOORE,
Chief United States Weather Bureau.

The SECRETARY OF AGRICULTURE.

B.

UNITED STATES DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
Scranton, Pa., November 30, 1906.

SIR: I have the honor to submit the following as the fifth monthly report on the probationary services of Mr. Howard E. Oakley, on duty at this station as messenger boy.

Mr. Oakley has continued a steady improvement since his appointment, and has shown intelligence in the performance of his duties. He is willing, and endeavors to render satisfactory service. He is of excellent habits, and is neat in his personal appearance. His health is excellent, and he has the intelligence necessary for the work required.

I recommend that he be given absolute appointment.

Very respectfully,

WM. M. DUDLEY,
Official in Charge.

CHIEF UNITED STATES WEATHER BUREAU,
Washington, D. C.

(Witness: Moore.)

Professor MOORE. Then I introduce Exhibit C, which is the fifth confidential report from the official in charge at Evansville, Ind., on the probationary assistant observer. This report shows that the observer had not measured up to our standard of efficiency, and that, although he was a man of good character, willing, and desired to meet the requirements, yet he was still a man too slow in his movements and not quick enough nor sufficiently apt in learning to do the difficult things that an assistant observer must do. Therefore, as shown by my letter, Exhibit D, he was dropped from the rolls at the end of his probation.

In these two exhibits I have cut out the name of the man and left that blank, because all that you wanted is the system, and not necessarily to humiliate the man, because there was nothing against his moral character.

(Following are Exhibits C and D referred to:)

C.

UNITED STATES DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
Evansville, Ind., July 9, 1904.

SIR: I have the honor to submit the following as the fifth monthly report on the probationary services of Mr. ———, on duty at this station as assistant observer.

Mr. ——— is, as far as I am aware, a man of excellent morals, and does not make use of intoxicants or tobacco in any form. While he has not been absent from duty on account of sickness since his arrival at this station, I am inclined to believe, however, that his general health is only fair. His physical mold is neither robust nor rugged. While no fault can be found with the general accuracy and faithfulness with which he performs the duties assigned to him, he is still very slow in everything. The fact that he is only a fair penman, combined with his nervousness, makes it, in my opinion, very doubtful if he will ever develop into more than a mediocre observer, clerk, or map maker.

As Mr. ——— is mentally worthy of an absolute appointment, and as the faults referred to above, excepting that of being slow, which he may overcome by hard work, are entirely beyond his control, I would respectfully submit his case to the Chief of Bureau with the recommendation that the same be favorably considered.

In justice to Mr. ———, I would also state that while he is slow he always tries to do the best he can.

Very respectfully,

AL. BRAND,
Official in Charge.

CHIEF UNITED STATES WEATHER BUREAU,
Washington, D. C.

D.

SIR: I have the honor to recommend that ——— ———, of Indiana, an assistant observer in the Weather Bureau at \$720 per annum on the station roll, be discharged, to take effect at the termination of July 31, 1904, because of unsatisfactory services during his probationary period. His unfitness does not involve his moral character, which appears to be excellent.

The necessary papers are herewith.

Very respectfully, your obedient servant,

WILLIS L. MOORE,
Chief United States Weather Bureau.

The SECRETARY OF AGRICULTURE.

(Witnesses: Moore, Zappone.)

I also introduce Exhibit E, which is a card similar to one that is in my case for every person employed by the Weather Bureau. It is an educational card, showing the different examinations that this Mr. Taylor has taken and his mark in each examination. This man had taken only one set of examinations, including three studies.

Exhibit F is another card, in which the employee had taken all three sets of examinations. His mark is shown opposite each one. It is observed that in two of the examinations, notably algebra and physics, he failed on the first trial, and after a stated period succeeded in passing on the second trial, which is indicated by two sets of figures, one in black and one in red ink.

Mr. SAMUEL. How many trials do you give them?

Professor MOORE. We give them the second trial. If they fail on the second trial they can not have a third trial until after an expiration of two years, and then it must come up by special decision of the Chief of the Bureau. We might keep examining a man indefinitely, he in the meantime trying every time to get a little better line on the character of the examination, hoping each time to make a little better showing. To be sure, we do encourage the man if he fails once to study and qualify himself to take the second examination, but the second examination will be an entirely different set of questions from the first.

Mr. CANDLER. Of course, when you determine him an incompetent man he goes out?

Professor MOORE. Not necessarily; he simply does not advance to the higher grades; he may be competent for the grade in which he is employed.

Mr. CANDLER. Then his examination is for the purpose of determining advancement to a higher grade?

Professor MOORE. To determine whether he is theoretically competent to go forward; but they do not determine his promotion. They only determine that he is theoretically qualified, and in our system he must be more; he must show that he is deserving of promotion. Some men are not deserving of promotion, although theoretically competent. There must be integrity of purpose back of the examination. Then our theoretical tests are noncompetitive. We do not really make the selection of the man by any theoretical examination. We make noncompetitive examinations to satisfy ourselves that the man intellectually is competent; that is all.

Mr. FLOOD. That is, the first examination.

Professor MOORE. Yes.

Mr. ZAPPONE. Professor Moore, you mean that these examinations have reference only to promotions, not to admission to the service?

Professor MOORE. These are all after original entrance into the service.

(Following are Exhibits E and F referred to:)

E.

Name: Taylor, T. R.

Completed grade.	Subjects.	Per cent.	Grade average.	Total average.
Sept. 16, 1904	English grammar	89	86.3	}
	Arithmetic	100		
	Meteorology (elementary)	70		
	Algebra			
	Physics			
	Trigonometry			
	Astronomy			
	Botany			
Meteorology (higher)				

Figures in italics indicate reexamination in subject.

F.

Name: Daingerfield, L. H.

Completed grade.	Subjects.	Per cent.	Grade average.	Total average.
Apr. 11, 1900	English grammar	94	89.3	}
	Arithmetic	84		
	Meteorology (elementary)	90		
Mar. 19, 1902	Algebra	61, <i>a73</i>	81.0	}
	Physics	61, <i>a80</i>		
	Trigonometry	90		
Dec. —, 1902	Astronomy	91	94.0	}
	Botany	94		
	Meteorology (higher)	97		

^aSecond examination.

Figures in italics indicate reexamination in subject.

Professor MOORE. I would like to get into the record this consecutive list of forms; they will illustrate the system of gradual growth, as we call it, in the Weather Service. I think in this system we have carried out the spirit of the civil-service law as well as the letter, coordinating theoretical tests with practical tests, and not making theoretical tests the sole basis of preferment.

Now, Exhibit G is simply a general statement that shows that this observer is getting \$1,000 a year; that he entered the service in July, 1902; that he was 24 years of age in 1900, and that he was born in Indiana; that he has two dependent upon him for support, namely, a wife and a son; and that he has a special qualification, that of being a telegrapher; that he spent seven years in the common schools, three years in the high school, and two years in a university.

(Following is Exhibit G referred to:)

G.

Name, Bonnett, Walter E.
Station, Detroit.
Entered service July 21, 1902.
Where born, Indiana.

Salary, \$1,000.
Title, Asst. observer.
Age, (Jan. 1, 1900), 24.
Dependents, 2; wife, son.

QUALIFICATIONS.

Printer.
Stenographer.
Telegrapher.
Electrical eng.

EDUCATION.

Common school, 7.
High school, 3.
Business college.
Academy.
University, 2.

(Witness: Moore.)

A similar card is in my file case for every employee in the Bureau. Then we have Exhibit H, which is the preference card of an assistant observer. It indicates that he does not desire a change of station, and that he would even forego promotion rather than leave his present assignment.

(Following is Exhibit H referred to:)

H.

Eddy, Nathan S.* \$840.

1. Do you desire a change of station? † No.
2. If you desire a change, name several stations in the order of preference, and state in what capacity you desire to be assigned.

Station.	In chg. †	Asst. †	Messgr. †	Station.	In chg. †	Asst. †	Messgr. †

* Leave blank.

† Answer "Yes" or "No."

3. Are you willing to perform the journey to the preferred station without expense to the United States? † No.

4. Do you desire promotion if it involves a change of station? † No.

REMARKS AND SPECIAL REQUESTS.

(Signature:) N. S. EDDY,

(Station:) *Pittsburg, Pa.*

(Date:) August 4, 1903.

Then we have Exhibit I, which is another preference card, indicating quite a different state of mind of the employee. This man answers our inquiry: "Do you desire a change of station?" Answer, "Yes." Then he mentions six places, in the way of preference, at which he would sooner serve than at his present assignment. We ask him then: "Are you willing to perform the journey to the preferred station without expense to the United States?" To which he answers, "Yes." Then we ask him: "Do you desire promotion if it involves a change of station?" To which he answers, "Yes." That inquiry is secured from every employee as soon as he enters the service, so that we may know his own preference, and we honor his request so far as we may do so without detriment to the public service on the hypothesis that a contented man is a more valuable employee than a discontented one.

The executive officer by comparing these cards may find that a man owns a home or has property interests or family interests, we will say, in Richmond, Va., and is serving in Salt Lake City, or that a man is serving in Richmond, Va., and has interests, say, off in the West somewhere, and would like to change places with the other man. By comparing the cards of all employees we can make such shifts as will make the service of the employee better to the Government by making him more contented, without detriment to the public service. To be sure, a man often may ask to go to a station where we do not need him or where there is no vacancy, and we can not honor his

(Witness: Moore.)

request. Or he may ask to go to a place that is beyond his capacity to fill. We do not honor his request then.

(Following is Exhibit I referred to.)

I.

Oberholzer, George R.* \$1,400.

1. Do you desire a change of station? † Yes.

2. If you desire a change, name several stations in the order of preference, and state in what capacity you desire to be assigned. If no change is desired, leave spaces below blank.

Station.	In chg.†	Ass't.†	Messgr.†	Station.	In chg.†	Ass't.†	Messgr.†
Harrisburg	Yes .....	.....	.....	Providence.....	Yes .....	.....	.....
Albany	Yes .....	.....	.....	Erie	Yes .....	.....	.....
Hartford.....	Yes .....	.....	.....	Scranton	Yes .....	.....	.....

3. Are you willing to perform the journey to the preferred station without expense to the United States? † Yes.

4. Do you desire promotion if it involves a change of station? † Yes.

REMARKS AND SPECIAL REQUESTS.

This request is made in view of the change that the new building may make desirable.

(Signature) G. R. OBERHOLZER,
(Station) La Crosse, Wis.

(Date) July 6, 1906.

* Leave blank. † Answer "Yes" or "No."

Now, I have another set of cards that I have forgotten to bring with me, but I will describe them to you. This card system enables me, for instance, to take out a card for New Orleans, and on that card I will find entered the name of every man in the service who has expressed a desire to serve at New Orleans; the same thing may be done for every station of the Bureau. I find a card system that shows me the name of every man who wants to go to a station where there is a vacancy.

There are certain preferred assignments where we have plenty of applicants for vacancies, and we usually shift our men around when a vacancy occurs and fill it with a man who is fit. And if we have a vacancy in a place to which no one has asked to go, then we must arbitrarily select a man.

Mr. SAMUEL. If you arbitrarily send a man, the Government pays his expense?

Professor MOORE. The Government pays the expenses in most of the changes, unless the change is made purely for the convenience of the man and he is willing to pay his own expenses. In many such cases, if we think the exchange is advisable, we make the change and pay the traveling expenses.

Mr. DAVIS. I notice one of the questions on the card asks the man if he desires promotion.

Professor MOORE. If they shall desire a change of station conditional on promotion.

Mr. DAVIS. Oh, yes; I thought that was an idle question.

Professor MOORE. A man might desire to be promoted and remain

where he is, but can not be promoted; and sometimes he will waive his promotion rather than leave his present place of assignment. Of course we give him the option.

Mr. ZAPPONE. Is it not the policy of the Weather Bureau to encourage employees at stations outside of Washington to economize and purchase small homes for themselves, and as an inducement they are given a sort of partial assurance that they will remain there as long as the good of the service will permit it? I mention this as apropos of the questions that have been asked.

Professor MOORE. To a certain extent that is true. We say to a new observer or a young assistant observer, "We don't want you to make ties that will prevent you moving," but when an employee gets to the rank of first assistant at a large station, or in charge of any station, then we encourage him to locate, get a home for himself, if he can, and become identified with the local interests. Then we say to him that if he will do his work well he may hold this place and he will not be removed except in case of promotion, and then he will have the option to remain.

Now I will introduce one other form as Exhibit J.
(Following is Exhibit J referred to:)

J.

U. S. Department of Agriculture, Weather Bureau.

Confidential report for the six months ended May 31, 1906.

Mr. Charles C. Garrett.

Original appointment in Weather Bureau (or Signal Service) became effective July 1, 1901 (map distributor and messenger from Sept. 16, 1898, to June 30, 1901, incl.).

Present grade: Assistant observer, at \$1,000 per annum.

Appointment to present grade became effective Jan. 1, 1905.

Date of arrival at this station: Sept. 6, 1904.

Married or single: Married.

Dependents (number and relationship): One; wife.

Special qualifications (irrespective of fitness comprehended by appointment in this Bureau): Some knowledge of telegraphy.

Full name, relationship, and telegraphic address of the person to be informed in case of employee's serious illness or death: Blanche E. Garrett, wife, 2128 C street, Lincoln, Nebr.

Owens home, yes; encumbered, yes; location, Lincoln, Nebr.

GENERAL REMARKS.

[The official in charge will freely express his opinion as to every quality or condition relating to the employee that affects the latter's personal or official character or standing.]

Habits: Good.

General health: Good.

Physical defects: None.

Live within means: Yes.

Standing in community: Excellent.

General ability and efficiency: A careful, conscientious, faithful worker of more than average ability. He makes a most excellent first assistant, as he looks after details closely, but, as yet, does not seem to be ambitious to study the science of meteorology and advance in that the best sense. He is studying for examinations for promotion and is, for me, a most excellent man.

Respectfully submitted.

G. A. LOVELAND,
Section Director, in Charge.

LINCOLN, NEBR., June 1, 1906.

(Witnesses: Zappone, Moore.)

Exhibit J is the report of the official in charge of the station at Lincoln, Nebr., on one of his assistant observers. A similar report like this comes twice each year to the central office and is made in regard to the service of every assistant of the Weather Bureau stations. It is written by the officer immediately over the assistant. This gives a good deal of detail information—when the man entered the weather service, his present salary, when he was promoted to his present grade, the date he arrived at this station, whether married or single, and how many dependents; also what special qualifications the man may have. In this case the man has knowledge of telegraphy. Then, in case of death and we want to reach his family quickly, there is inserted the full name and relationship of the party who is to be notified in case of serious illness or death. Then we ask him if he owns a home, and in this case the man answers “yes.” Also the question, Is it encumbered? And the answer is “yes.” Also the location, which here is Lincoln, Nebr.

It will be seen that the official in charge here gives a good report of this assistant observer, showing him to be a careful, conscientious, and faithful worker of more than average ability, who attends to the details of the meteorological work excellently, but does not seem to be ambitious to study the science of meteorology and advance. I introduced this as a sample of the confidential reports that I receive from all of the several hundred Weather Bureau stations twice each year, and on that confidential report the chiefs of the divisions of the central office, with me, each year, go over all those reports and then arrange these men in the order of their comparative efficiency.

Considering that report in connection with these educational reports to which I have previously referred, I think now that I have made our system of promotion a little clearer than I did the other day.

That is all I have, unless there are some questions that members of the committee desire to ask.

Mr. FLOOD. Will you give a classification of the force under you, scientific, clerical, and otherwise?

Mr. SAMUEL. This report gives that?

Mr. ZAPPONE. Yes; it is included in the report, and he has spoken of the scientific staff as far down the list as the chairman would allow him to do so.

Mr. FLOOD. The report says that he has clerks of classes 1, 2, 3, and 4 in the clerical force, and then some clerks not in either one of these classes.

Professor MOORE. It is difficult to do that with our workers.

Mr. FLOOD. I wanted a succinct statement of the force under you by classes.

Professor MOORE. The appropriation bill gives that, and I do not remember the exact number that is in each class.

Mr. FLOOD. I don't care for the number, but I want the classes.

Professor MOORE. We have between 180 and 190 employees at Washington—mechanics, messengers, watchmen, clerks, accountants, and experts in the handling of meteorological data.

Mr. ZAPPONE. May that be filed as an exhibit?

Professor MOORE. We also have several professors who are on the staff of the chief.

Mr. FLOOD. That constitutes the working force here?

Professor MOORE. Yes, sir. In the station force there are two professors outside; and the men in charge of the stations are more or less engaged with scientific work. It would be difficult to say whether a man running a meteorological station is a scientific man or whether he is not; it is a class distinction. Sometimes he may be a scientific man of high order, and again he may be a man who would hardly rank as a scientist, still with an elementary knowledge of science. Our work is more technical than most of the work of the Government Departments. It requires a high degree of education for our people as a rule.

Mr. FLOOD. I think this is shown in the statement here.

Mr. ZAPPONE. If you want a statement of the various grades in Washington and out of Washington it can be furnished and will give you the number in each grade and their salaries.

Mr. FLOOD. I would like to have that.

Mr. ZAPPONE. You do not care for the names? I would suggest, Professor Moore, that you file as an exhibit a statement showing the statutory roll, divided into grades, also a copy of the salary statement that you compile at the end of each month. These statements would give what Mr. Flood desires.

Professor MOORE. Do you want the number we have in each grade?

Mr. FLOOD. The class and number.

Professor MOORE. I will put that in as Exhibit K.
(Following is Exhibit K referred to:)

STATUTORY SALARIES.

OFFICE CHIEF OF WEATHER BUREAU—ON DUTY IN WASHINGTON.

Number in grade.	Designation.	Salary per annum, each.
1	Chief of Bureau	\$5,000.00
1	Assistant Chief of Bureau	3,000.00
1	Chief clerk	2,250.00
4	Chiefs of division	2,000.00
1	Librarian and climatologist	2,000.00
6	Clerks of class 4	1,800.00
6	Clerks of class 3	1,600.00
17	Clerks of class 2	1,400.00
26	Clerks of class 1	1,200.00
17	Clerks	1,000.00
8	.....do.....	900.00
4	Copyists or typewriters	840.00
1	Copyist or typewriter	720.00
2	Assistant foremen of division	1,600.00
1	Proof reader	1,400.00
1	Chief mechanic	1,400.00
1	Lithographer	1,300.00
3	Lithographers	1,200.00
2	Pressmen	1,250.00
10	Compositors	1,250.00
1	Skilled mechanic	1,200.00
5	Skilled mechanics	1,000.00
1	Engineer	1,200.00
1	Captain of the watch	1,000.00
1	Electrician	1,000.00
6	Skilled artisans	840.00
5	Messengers or laborers	720.00
3	Firemen	720.00
3	Watchmen	720.00
5	Folders and feeders	720.00
3	.....do.....	630.00
6	Messengers or laborers	660.00
13	Messengers, messenger boys, or laborers	600.00
4	.....do.....	480.00
5	.....do.....	450.00
1	Charwoman	360.00
3	Charwomen	240.00

WEATHER BUREAU.

(Witness: Moore.)

ON DUTY IN WASHINGTON.

Number in grade.	Designation.	Salary per annum, each.
4	Professors of meteorology.....	\$3,000.00
2	do.....	2,500.00
1	Chief of climatological division.....	2,750.00
1	Observer.....	1,200.00
8		

LUMP-SUM SALARIES.

(Appropriation "Salaries, Weather Bureau.")

ON DUTY OUTSIDE OF WASHINGTON.

Number in grade.	Designation.	Salary per annum, each.
1	Professor of meteorological physics.....	\$3,000.00
2	Professors of meteorology.....	3,000.00
2	Inspectors.....	2,500.00
6	District forecasters.....	2,400.00
1	Research director.....	2,000.00
3	Local forecasters.....	2,000.00
6	do.....	1,800.00
2	Section directors.....	2,000.00
18	do.....	1,800.00
12	Local forecasters.....	1,600.00
35	do.....	1,400.00
9	Section directors.....	1,600.00
10	do.....	1,400.00
83	Observers.....	1,200.00
88	Assistant observers.....	1,000.00
38	do.....	840.00
1	Assistant physicist.....	1,400.00
1	Research observer.....	1,400.00
1	do.....	1,200.00
57	Assistant observers.....	720.00
1	Operator.....	1,000.00
1	Expert in vessel reporting.....	840.00
7	Printers.....	1,200.00
14	do.....	1,000.00
1	Skilled mechanic.....	1,200.00
7	Repairmen.....	720.00
2	do.....	600.00
2	Unclassified laborers.....	720.00
2	do.....	600.00
2	do.....	480.00
1	Unskilled laborer.....	860.00
3	Station agents.....	300.00
9	Student assistants.....	300.00
2	Messengers.....	720.00
17	do.....	600.00
36	do.....	480.00
53	do.....	360.00
531		

Mr. FLOOD. I would like to get some information about the rainfall observers. How many of them have you?

Professor MOORE. My recollection is that there are 350 of them.

The CHAIRMAN. The classification of the employees in your Department can be ascertained by mere mathematical computation from this list of expenditures that is submitted to us?

Professor MOORE. In order to simplify the matter, so far as the regular force is concerned, I will have Mr. Zappone file a certain statement in which the number of employees in each class will be shown.

The CHAIRMAN. That is a duplicate of the record of your Bureau showing the facts.

(Witness: Moore.)

Mr. FLOOD. Why is it that you pay some of these people one price and some another—some by the month and some by the observation?

Professor MOORE. The persons we pay by the month usually report during the entire growing season or else during the entire year, in accordance with the necessities of the case. There may be a slight variation in the salaries paid to these observers, which is determined by the distance which they have to go to the telegraph office and the distance that they may have to walk to read the gauge on the stream they are reporting. Sometimes precisely for the same amount of work in two different cities we will have to give a little more to get somebody to do the work. Sometimes the man will say: "I will not do that work unless I can get so much for it," and if we can not get somebody else we may have to take his terms. It is very small. The salaries range from \$6 to \$8 a month—sometimes \$3 or \$4 or \$5. Where we need a report when there has been a rainfall we pay them 25 cents or 50 cents for taking it and forwarding it.

The CHAIRMAN. Is the compensation predicated upon the actual amount of work performed?

Professor MOORE. Precisely.

The CHAIRMAN. Who reports that? Is that work done by the local inspector in charge?

Professor MOORE. The local station to which this man reports. I can give you an illustration: A river observer, or a rainfall observer, which is practically the same thing, measures the rainfall and reads the gauge, if he has one, and in a telegram each morning he reports that to the official in charge of the same river district. It may be the official in charge at Vicksburg, and at the end of the month the official at Vicksburg will report to our office and tell us just how many reports this man rendered, if the man is being paid by the number of reports. If by the month, which would be the case if we desired a continuous service, he would write and certify that the man had reported to him during the entire month, and he then certifies to the vouchers.

The CHAIRMAN. In each case is the compensation for the continuous service predicated upon what you learn by actual experience is necessary for a man to have in that locality, and is he entitled to that sum on the basis of the number of reports made? The man who gets the lump sum per month gets the same compensation as the man who gets the sum per report?

Professor MOORE. No.

The CHAIRMAN. When you hire the men by the lump sum, does it cost the Bureau more or less than it does when you pay for each report?

Professor MOORE. It costs us less per report when we hire the man by the month, very much less, but there are many places where we do not want a report except when there is a sudden rise in the river or an excessive rainfall at that particular part of the watershed. In that case we do not want to pay him by the month when we only need three or four reports for the entire year, and so we say to him, whenever the river rises to such a height, or the rainfall is of such an amount, to send it in, and then we will pay him per report.

The CHAIRMAN. The services of the kind to which you refer are

so unusual in their character that you can not very well predicate them upon continuous employment and continuous compensation?

Professor MOORE. No, sir. We have to allow a little more for each report, twenty-five cents or fifty cents, and the compensation only amounts to a few dollars per month, the idea being to pay for precisely what service we get and no more.

Mr. FLOOD. Is this what they get per month or per year?

Professor MOORE. The actual amount they get.

Mr. FLOOD. During the year?

Professor MOORE. Yes, sir. W. A. Crawford sends in observations at 50 cents per observation, and so during the year he only reported 10 times, and his compensation for the entire year was \$5. If we had employed him during the several months that floods were liable in that region we would have paid him \$6 a month, and his compensation would probably have been \$40 or \$50.

The CHAIRMAN. In a general way, and referring to your whole service, do you have any difficulty in getting competent men for the compensation you pay for the various grades?

Professor MOORE. I have no difficulty in getting the assistant observers to enter at the small salary of \$720 per annum, because we start with young men, boys just out of the high school or out of college. We limit the age of appointment from 18 to 30 years. They are usually young unmarried men and they are willing to come and work for \$60 a month while they are learning a profession.

The CHAIRMAN. They are competent for the work?

Professor MOORE. Yes, sir. Of course they do complain more or less at the low compensation—

The CHAIRMAN (interrupting). That is universal throughout the whole Government service.

Professor MOORE (continuing). And we answer: "You can not be of much use to the service until you have been trained, and the Government is paying you \$60 a month while it is training you, and when you have served a year or two years and have made a good record you go forward to \$840, and then up to \$1,200 or \$1,400 or \$1,600." I think the salary scale, while it is low for those who enter the service (and it is very low for a messenger who comes in at \$360), in view of the fact that the man has an opportunity to educate himself and to be educated in our system, is fair. You can see that there is a steady growth, an intellectual growth, in which he has text-books put into his hands and superior officers willing to hear his recitations and help him; so, in view of the opportunity to grow into a useful profession, we think the low salary is justified and that the man gets fairly well compensated.

The CHAIRMAN. Do they all come in through the civil service?

Professor MOORE. Entirely.

The CHAIRMAN. How many men are there on the waiting list all the time?

Professor MOORE. I do not know; I never asked the Civil Service Commission.

The CHAIRMAN. Could we reach that information anywhere except through the Civil Service Commission?

Professor MOORE. I could answer that question in a general way. I have always found a waiting list there.

(Witness: Moore.)

The CHAIRMAN. You have no knowledge of the number of men now on the waiting list, showing the number looking for that kind of employment at that rate of wage?

Professor MOORE. No; I have not. The Civil Service Commission could render that. You must bear in mind that this is a special service, and a young, unmarried man who would come here and take \$720 per annum with the opportunity of continuing his education would not accept that compensation in some other part of the Government service where he had not this opportunity for education, because the salary would hardly pay his living expenses.

The CHAIRMAN. You gave us the other day quite a number of intellectual tests that are required for advancement in the various classes?

Professor MOORE. While you were absent I gave a number of figures showing the entire system.

The CHAIRMAN. It shows rather a progressive system of education and intellectual acquirement running all through the service?

Professor MOORE. Yes, sir.

The CHAIRMAN. Is a man in the service expected to acquire that education outside of working hours or in working hours?

Professor MOORE. There is no rigid rule. As a rule, they acquire it outside of working hours, but their recitations may be held in working hours by the official in charge, if they recite under him. There are times when observers on duty—especially night duty—will have sometimes quite an interval without any work.

The CHAIRMAN. Is there, as a rule, in your service, on account of the character of the duties performed, ample time or otherwise for the acquiring of this education that is necessary in order to pass this examination? Do they have time after they discharge the duties they ought to discharge to acquire this education?

Professor MOORE. Some of our men have reported to me that they have not. Some of them complain that the working hours are such that they get little time to study.

The CHAIRMAN. You say "some;" what is the rule—that is, on the whole—do they have time?

Professor MOORE. On the whole, they do not have time to pursue all the studies in the working hours; no.

The CHAIRMAN. Could you give any estimate as to the percentage that do have time?

Professor MOORE. I think I could probably give you a little of my own experience. When I was an observer myself, years ago, this system of educational test was not then in vogue, but I pursued precisely that course of study and did it independently. I did most of my studying at home, mostly at night. Sometimes when I would have an hour or two slack time during the working hours I would study inside of the working hours. I think that may be a truthful statement of pretty nearly every man in the service. Most of the study must be done outside of the office, and yet not entirely so. I do not think that they should complain of that, and they do not, as a rule, but once in a while I get a complaint. A man will say "I have not been able to pass the examination and have been held back because I have so much work at this station that I really could not get the time to study." Then I look up his case and try to adjust it.

The CHAIRMAN. The only practical question would be whether to-day your service is so arranged and the duties so distributed and the men so assigned that each man is kept continuously, substantially, employed through the eight or nine hours of service in doing the practical and actual things connected with your Bureau?

Professor MOORE. He is not continuously.

The CHAIRMAN. For instance, you have a man who works nine hours or eight and a half hours?

Professor MOORE. Yes, sir.

The CHAIRMAN. If it only takes him four hours of the eight and a half hours, to illustrate, to do the real work and he has four and a half hours on his hands and utilizes the four and a half hours for acquiring this education, he is getting the advantage of getting his compensation and the opportunity to acquire this education in the time for which he is paid by the Government?

Professor MOORE. Precisely.

The CHAIRMAN. And that ought to be taken into account in fixing his compensation?

Professor MOORE. It is.

The CHAIRMAN. If these young men are progressively educated at the expense of and in the time of the Government, other things being equal, that ought to reduce the compensation paid to them. Do you take that into account in fixing the compensation?

Professor MOORE. We do.

The CHAIRMAN. In what way?

Professor MOORE. In the low salaries that we pay for this service we can not make——

The CHAIRMAN (interrupting). What is the salary?

Professor MOORE. Seven hundred and twenty dollars. If a young man is serving at an isolated station out in the West——

The CHAIRMAN (interrupting). How old are these men?

Professor MOORE. From 18 to 30 years of age, usually unmarried, and only just out of school and college.

The CHAIRMAN. What is the age of the great bulk of them?

Professor MOORE. The average offhand, I would say, is about 22 to 24 years of age. I described a little while ago that an observer may not have time to pursue the studies in the office hours and in a great many cases he does have time. It depends upon the character of the assignment. These assignments are not all of the same character, because we have so many diversified interests to serve in different cities. We can not make exactly the same working hours for one office as another. We have to serve the local interests. At Denver they start to work at 5 o'clock in the morning and finish at 7 o'clock in the evening. Here they will begin at 7.30 o'clock in the morning and work until about 11 o'clock at night, every night, but there are intervals when an observer may have an hour to-day and possibly two hours to-morrow. He will work probably all of the time during the first ten days of the month and toward the end of the month he may have ten days in which he will have two or three hours a day.

Mr. SAMUEL. Is that continuous duty all those hours?

Professor MOORE. No, sir. We aim not to let an employee be on more than seven and one-half hours, if possible. I often find a young

(Witness: Moore.)

man will work seven and one-half hours and take his books and sit down and study at the office in the evening. They do get more or less opportunity to study inside of office hours, but I can not say how much; it is impossible to do that without making a searching inquiry.

The CHAIRMAN. You have not kept any data to make a definite statement?

Professor MOORE. No, sir.

The CHAIRMAN. Is it not possible to so rearrange and readjust your service that the men employed will be kept continuously employed during the time they are on duty?

Professor MOORE. No, sir.

The CHAIRMAN. Is the character of the work such that that is practically impossible?

Professor MOORE. It is practically impossible at a great many stations, and it is possible at other stations, for a large portion of the working force.

The CHAIRMAN. Just describe why it is impossible, and then, in connection with the other stations, why it is feasible and is adopted, if it is adopted.

Professor MOORE. A man would be continuously occupied at the New York station, for instance, in the printing of the maps and miscellaneous work that might go to his desk, and he would work a certain number of hours and then put on his coat and go away when through. There would be another man who would go out in the morning to make the glass maps in the various commercial exchanges. When he gets to an exchange he might have to wait half an hour for reports, and he might have a considerable interval of time between one set of reports and another, and so there will be intervals of waiting in between.

If he is on duty at night he must stay there until he gets what we call "good night" from this office to close up, that there are no danger warnings coming, and everything is over. His work of answering telegrams, receiving visitors, receiving representatives of the press, may keep him very busily occupied one night, and another night he may only have an hour's work during the evening. You can not always tell. The forepart of each month, the first ten days, at every station there is much more work to do than during the last ten days, and they may work eight, nine, and ten hours in getting off the monthly work, and during the last part of the month they may make it up by taking a little time off, working six or seven or five hours, as the case may be. Our work is so different from that of an office that simply opens at 9 o'clock and closes at 4.30 in the afternoon that we can not regulate our work by any definite system of office hours. One community will require an observer to get up earlier and stay later than the demands of the service require in another community.

Mr. SAMUEL. At nearly all the railway stations they have weather cards. Does the Government pay for them?

Professor MOORE. Yes, sir. The Government furnishes the station agent with a card containing the forecast, or the agent will have the card and we will telegraph him the forecast and he will fill in the card and post it. We probably get the most thorough distribution through the telephone system. There are over a million telephonic

messages that go out every day containing the forecast as soon as it is made up about 10 o'clock in the morning. We get that service free; it does not cost the Government anything. There are also about 90,000 printed forecasts that go out by the rural free-delivery service. But we can not as a rule utilize the free-delivery service.

Mr. FLOOD. Because it is too slow?

Professor MOORE. It leaves too early in the morning for us to send the latest Weather Bureau information. If the mail carriers left at 10 o'clock in the morning we could send the latest forecast—the forecast based on the observations made at 8 o'clock each morning; but as most of the mail carriers leave at 7 or 8 o'clock in the morning, the only thing we could send out would be the forecast from the observations made at 8 o'clock the night before, and that is printed in the daily papers, and if they take the papers they get it, and it has not been the policy of the Agricultural Committee of the House to authorize us to send out by the early rural free-delivery service the forecast made the night before.

Mr. FLOOD. To whom would you send it by the rural carriers?

Professor MOORE. To every mail box on the route.

Mr. FLOOD. To every patron on the route?

Professor MOORE. Yes, sir; on a little printed slip. We do reach about 1,000,000 farmhouses every morning by mail carriers who leave after 10 o'clock in the morning.

Mr. FLOOD. A good many do leave after 10 o'clock, I am sure, during the spring months?

Professor MOORE. Only a few. We have gone over that very carefully and we supply everyone who leaves after our morning report is completed. We supply all the free rural carriers that leave after that time with the printed slips.

Mr. FLOOD. In my district the majority of them leave after 10 o'clock.

Professor MOORE. Do they?

Mr. DAVIS. What is the process of getting the printed slips into their hands?

Professor MOORE. If there is a Weather Bureau station in the vicinity or in the town from which the carrier leaves, the local observer will print up the slips for him either on a printing press, if it is a large station, or will stamp them with a rubber stamp, if it is a small station.

The CHAIRMAN. To whom are they distributed?

Professor MOORE. To every mail receiver on the route. In other words, the carrier, if he has 100 people on his route, will have 100 slips of paper.

Mr. FLOOD. Suppose there is no observer there?

Professor MOORE. Through the cooperation of the Post-Office Department we furnish the postmaster with a little rubber printing outfit, and he gets the forecast by telegraph and sets up the rubber stamp and stamps the forecasts on the number of slips required.

Mr. DAVIS. Does he do it gratuitously?

Professor MOORE. Yes, sir.

The CHAIRMAN. Are those slips sent out from every place where you have the observations and the records prepared for public distribution, so that the service extends over the country?

(Witness: Moore.)

Professor MOORE. We only send out the forecast by the free rural service where the carrier leaves after 10 o'clock a. m.

The CHAIRMAN. Is this distribution made from all stations situated in like manner, so far as the facility of carrying the information is concerned, all over the country; is the system universal?

Professor MOORE. Yes, sir. As I explained a little while ago, a carrier may leave from a town where we have no weather bureau station. Then we telegraph the postmaster there and he uses a rubber type outfit that we have equipped him with before—stamps the forecasts for the carriers who leave his office. That is done as a courtesy on the part of the Post-Office Department.

Mr. FLOOD. If it is desired, then, you will send a report, or have one sent, to every rural free delivery office where the carriers leave after 10 o'clock?

Professor MOORE. Yes, sir; that was thrashed out very carefully by the Agricultural Committee. There was a proposition which came before them to have the daily forecast go out by all free rural carriers, but it meant the sending out of 1,000,000 slips every morning, and just the printing of those slips was an enormous task, and it would involve considerable expense and labor, and the committee decided not to authorize the expense to do that.

Mr. DAVIS. When was that thrashed out by the Agricultural Committee, if you recollect?

Professor MOORE. Within the last four years.

Mr. DAVIS. My term on the committee has been limited, and I have heard nothing of it.

Professor MOORE. It was probably three or four years ago.

Mr. CANDLER. It did not come up last year?

Professor MOORE. No. I put in an estimate for \$100,000 just to print the 1,000,000 slips we would require every morning for the whole amount of the work. Then the committee went into the advisability of doing the thing and they decided it was not advisable to send out the weather forecasts except where the carriers left after 10 o'clock so we could send out the forecasts made this morning instead of sending out the forecast made last night.

The CHAIRMAN. Unless you get the weather forecast out within a reasonable time it does not prove to be of any value to anybody?

Professor MOORE. No, sir. We aim not to distribute any data that is obsolete or useless.

The CHAIRMAN. If you are going to undertake to advise the public of the results of your work that advice must be so far as possible contemporaneous with the acquiring of the information?

Professor MOORE. Yes, sir; because the changes are so rapid.

The CHAIRMAN. It would not be worth while to send out reports of the previous day?

Professor MOORE. They would be some value to the people in the country getting the forecast made from the observation taken last night. That is what you see in the paper every morning. But the committee decided not to distribute the forecast of last night because you could get it already printed in the daily paper. The answer to that is that all the carriers do not have access to the daily papers. There would be some value result from the distributing of the fore-

(Witnesses: Moore, Zappone.)

cast made last night. They would get the forecast about noon to-day and that forecast would run until to-morrow evening.

The CHAIRMAN. The class of men likely to profit by the work you do in the main would be men who take the daily papers?

Professor MOORE. Precisely.

Mr. FLOOD. Not at all, because on these routes the daily papers do not get there until the next day.

The CHAIRMAN. But they are the men who as a rule would be likely to take the papers?

Professor MOORE. Yes, sir. There are some people who could not get a daily paper, and there are many such who could be supplied with the night forecast on the morning distribution, but it would require a great deal of money, because we would have to send out probably a million slips every morning.

Mr. FLOOD. At some of the little post-offices where there is no station you would have to telegraph and the postmaster would have to stamp the slips?

Professor MOORE. Yes. They can stamp the slips as fast as that [indicating].

Mr. FLOOD. Do you find that the postmasters do that?

Professor MOORE. Yes, sir. I presume, however, if Congress authorized us to make a complete distribution of the forecast over every rural free-delivery route we would have to give some little extra compensation to the postmasters, because there are a good many places where they would have to stamp a thousand slips each morning.

Mr. DAVIS. What is the expense of this telegraphing to the postmasters?

Professor MOORE. If inside of 300 miles, 10 cents.

Mr. DAVIS. The total expense?

Professor MOORE. I can not tell you exactly.

Mr. DAVIS. Approximately?

Professor MOORE. Our total expense for telegraphing is about \$225,000. I can not tell you how much it is for these forecast messages. I could have it separated.

The CHAIRMAN. The total amount for telegraphing under your appropriation was \$178,898.76.

Professor MOORE. Is that the total? We are spending over \$200,000 a year, I know.

The CHAIRMAN. How does that happen?

Professor MOORE. There is always a steady increase in telegraphing, and the Agricultural Committee nearly every year adds a few thousand dollars—\$5,000 or \$10,000.

The CHAIRMAN. That would be an increase of 20 per cent if you are spending \$200,000. Have you increased your stations?

Mr. ZAPPONE. \$178,000 for telegraphing and \$19,000 for telephoning. In addition, on September 30, 1906, there were outstanding liabilities for telephoning and telegraphing amounting to about \$18,177.

Professor MOORE. That makes it right.

The CHAIRMAN. \$18,654.19 for telephones?

Professor MOORE. Yes, sir; that makes the \$200,000.

The CHAIRMAN. You include both?

(Witnesses: Moore, Zappone.)

Professor MOORE. Yes, sir; for the distribution of information.

The CHAIRMAN. Page 51 shows the total amount paid for telegraphing to be \$178,898.76?

Mr. ZAPPONE. On page 60 you will see the summary for the entire Bureau.

The CHAIRMAN. Those are the same as the figures he gave—telegraphing \$178,898.76 and telephones \$19,225.53?

Mr. ZAPPONE. Yes, sir; that is right.

The CHAIRMAN. In the detailed list you give \$18,654.19 for telephones, but in the summary you give \$19,225.53, an increase of \$600?

Mr. ZAPPONE. Where you have read it only refers to one appropriation, that for General Expenses. If you will look along further you will find telephoning.

Professor MOORE. The committee increased the lump sum appropriation last year, my recollection is, \$10,000, especially to meet the increasing demand for telegraphing. That demand comes from many commercial organizations that want a more complete distribution of the weather report. Many cities only get a part of the system of observation and they want the entire system or want more of the observations. There is a steady demand on the service as the country grows for telegraphing, they want more and more of this Bureau's data, the observations from other cities. There is hardly a city that has a weather map that does not come in every few months and say: "You have not the observations from Los Angeles, we do not get them, and we want them," or "We have not the observations from El Paso, Tex.," or Portland, Me., "We do not get them, and we want them added to our map." We investigate it and if the claim is good, we probably make the addition. There is a steady growth. It is difficult to curtail the number of weather reports once a city receives them.

Mr. ZAPPONE. You will find on page 13 under the appropriation for "Contingent Expenses, Weather Bureau"—that is the appropriation that pertains to the District of Columbia—\$571.34 for telephones. That amount is in addition to the amount for station telephones, and makes up the apparent discrepancy. They are all used in the dissemination of weather forecasts.

Mr. DAVIS. I notice, on page 60, the item "Gas and electricity, \$4,278.57." Where is that used?

Mr. ZAPPONE. That refers to the entire service, both inside and outside of Washington, and appears under the several appropriations.

Professor MOORE. The amount is small, because we make our electricity here, and we light our headquarters entirely from our own engines and dynamos, but this is the gas and electricity at nearly 200 stations, meteorological stations, and for many storm-warning lights.

The CHAIRMAN. Does the Government manufacture any of its own gas or electricity?

Professor MOORE. Here in the office?

The CHAIRMAN. In Washington?

Professor MOORE. Yes, sir.

The CHAIRMAN. Does the expense of that manufacture come into this item?

(Witnesses: Moore, Zappone.)

Professor MOORE. No; this \$4,000 is what we paid for electricity and light.

The CHAIRMAN. Outside of Washington?

Mr. ZAPPONE. Outside of Washington the expense was \$4,002.77, and the difference is distributed among the small appropriations, making this aggregate of \$4,278.57.

Mr. DAVIS. "Miscellaneous supplies and services, equipment, books, apparatus, machinery, and laboratory materials of all kinds, \$215-486.93." Is that an annual expense?

Professor MOORE. That is what was spent last year.

Mr. DAVIS. That is an annual expense?

Professor MOORE. Yes, sir; the annual expense will run something like that.

Mr. ZAPPONE. That is what it was for 1906. I can give you the same information for 1905, which will show you how it varies from year to year. For 1905 it was \$202,000, in round numbers.

The CHAIRMAN. As against \$215,000 for 1906?

Mr. ZAPPONE. Yes, sir; a difference of a little over \$13,000.

Mr. DAVIS. You have an itemized table of these expenses in this report?

Mr. ZAPPONE. Yes, sir; under each appropriation. It is made up according to the order of the appropriations in the appropriation bill, one appropriation after another, and miscellaneous expenses are incurred under each of them. The largest appropriation of the Weather Bureau is the general expense fund, called in the bill "General expenses, Weather Bureau."

The CHAIRMAN. That begins on page 40, "Miscellaneous supplies and services, equipment, books, apparatus, machinery, and laboratory materials of all kinds," and runs over to page 48, and gives the total of \$117,324.78?

Mr. ZAPPONE. That is right. That is under the general fund.

The CHAIRMAN. It does not come up to \$215,000. Be kind enough to look that up and tell us where the balance is here.

Mr. ZAPPONE. Yes, sir.

Cost of miscellaneous supplies, etc., for the Weather Bureau, under the following appropriations:

Fuel, lights, and repairs, Weather Bureau.....	\$6, 139. 87
Contingent expenses, Weather Bureau.....	5, 200. 04
General expenses, Weather Bureau.....	117, 324. 78
Buildings, Weather Bureau.....	52, 748. 43
Cables and land lines, Weather Bureau.....	34, 073. 81
Total.....	215, 486. 93

Mr. DAVIS. Can you tell me what the total expenses of the Weather Bureau system are complete and entire?

Professor MOORE. A little less than \$1,500,000.

Mr. DAVIS. That is all included in the general appropriation for the Agricultural Department?

Professor MOORE. Yes, sir.

The CHAIRMAN. I find in the summary expended for stationery \$39,395.04; miscellaneous supplies and services, equipment, books, apparatus, machinery, and laboratory materials of all kinds,

(Witnesses: Moore, Zappone.)

\$215,486.93, and furniture, \$15,064.50, an aggregate of something over \$250,000 for supplies for your Bureau.

Professor MOORE. Yes, sir.

The CHAIRMAN. I would like to inquire what method you use in purchasing those supplies and whether you use the same method that obtains in the other Departments of the Government for the purchase of supplies?

Professor MOORE. We purchase nearly all those supplies through the calling for bids, and the awarding of contracts by a board in the Department itself, on which the Weather Bureau has one representative—a board of three. On that board I recommend one appointee from the Weather Bureau who understands the needs of the Weather Bureau. For everything we can foresee we are going to need during the coming year we ask for bids for the furnishing of it, and those bids go to this general departmental board, on which the Weather Bureau has one expert who is familiar with the needs of the Bureau. That general board makes an award to the lowest bidder, if the lowest bidder be competent. From those bidders we buy everything we may need during the coming year except the purchase of special apparatus and appliances that we can not anticipate. There is a Weather Bureau board, and I think I appoint that board myself.

Mr. ZAPPONE. Yes, sir.

Professor MOORE. That board calls for bids for everything over a small amount. What is that amount, \$10 or \$25?

Mr. ZAPPONE. Ten dollars in the Weather Bureau.

Professor MOORE. And everything we purchase we purchase through that board in open competition.

The CHAIRMAN. Do you know of any system that is used in some of the other Departments of the Government that was originated by Mr. H. Hadley; has your attention ever been called to it?

Professor MOORE. I know nothing of it; but right here I would like to say there is very great danger in having all of a given thing for the entire Government purchased in one contract and from one bidder, for the reason that the amount may be so enormous that no one man can bid on it, except one or two big trusts, and they would put the price way up and get it.

The CHAIRMAN. That ought not to be a criticism of the purchase of supplies in your Bureau, with only \$250,000 a year?

Professor MOORE. It is not.

The CHAIRMAN. I can imagine that situation, but I do not see how it would be applicable to your Bureau.

Professor MOORE. I am referring to the whole departmental service. For instance, take our envelopes and paper. If our paper and envelopes were bought through some governmental general board that bought the paper and envelopes for the entire governmental service the contract would be so enormous—

The CHAIRMAN. I do not understand that there is any practice that involves the purchase of all the supplies for the Government.

Professor MOORE. There is for envelopes.

Mr. ZAPPONE. Yes; the Postmaster-General makes a contract for all the envelopes for the Executive Departments.

Professor MOORE. If there was a bid for 20,000,000 envelopes, many manufacturers could compete; but if the bid was for several hundred

million, only the trust could supply the number, and it would get its own price.

MR. SAMUEL. You think if the Department makes its purchases in proportion to its needs that you get lower prices?

PROFESSOR MOORE. Yes, sir.

THE CHAIRMAN. That applies to all the Departments?

PROFESSOR MOORE. Yes, sir.

THE CHAIRMAN. Do you know whether there is any difference in detail, so far as your Bureau is concerned, in its method of purchasing for the purpose of reaching the best results, so far as economy is concerned, as compared with other Departments of the Government?

PROFESSOR MOORE. I do not know what the regulations are in the other Departments. I am very confident that our system of purchasing everything in open competition, either by Weather Bureau board or by the general Agricultural Department board, is a very thorough system, and it does result in getting the best thing for the least money.

Thereupon, at 12.15 p. m., the committee adjourned to meet tomorrow, Tuesday, January 8, 1907, at 10 o'clock a. m.

HOUSE OF REPRESENTATIVES,
Washington, D. C., Tuesday, January 8, 1907.

The committee met at 10 o'clock a. m.

Present, Messrs. Littlefield (chairman), Samuel, Flood, and Candler.

There appeared before the committee Prof. Willis L. Moore, Chief of the Weather Bureau; Mr. A. Zappone, and Mr. Jesse A. Robinson, of the Department of Agriculture, and Mr. Henry K. McCay, president of the McCay Engineering Company, of Baltimore, Md.

**STATEMENT OF PROF. WILLIS L. MOORE, CHIEF OF THE
WEATHER BUREAU—Continued.**

PROFESSOR MOORE. Mr. Chairman, you are to hear my explanation in regard to the complaint of the McCay Engineering Company, of Baltimore.

THE CHAIRMAN. They were to be here or to have a representative here this morning, but he does not seem to be here, so we will suspend that for the moment and go on to some other branch of the hearing.

PROFESSOR MOORE. Very well.

THE CHAIRMAN. I notice items here under cotton-region observers and corn and wheat observers. What is the distinction between these men and your river and rainfall observers? Why do you segregate them into different classes; what is the particular signification of that?

PROFESSOR MOORE. The difference is that the cotton, wheat, corn, or fruit observer, as the case may be, takes an observation in the growing fields during the crop season and telegraphs it to some district center, that district center taking all of the wheat and corn or cotton observa-

(Witness: Moore.)

tions that come to it and determining the average of the temperature and the average of the rainfall for the section.

The CHAIRMAN. And those are taken with special reference to the benefit accruing to those particular crops?

Professor MOORE. Those are taken with special reference to the benefit of those crops; yes. Then this average rainfall and temperature for that area is put on the telegraphic circuits and goes to all the principal commercial organizations of the country. There are quite a number of these centers, so that we cover pretty well the great cereal-growing regions of the country and also the cotton belt of the country with those data of temperature and rainfall during the growing season. It is practically a daily report as to the meteorological conditions as they affect the growing crops, for the information of the commercial organizations.

Now, the river observer's observation is telegraphed to a river center, and that river center will have enough reports from rainfall observers to enable the local forecaster of that river center to determine the height of the river in his district for anywhere from three to five or seven days in advance.

Those gauge readings are of value during the low-water stages as well as during flood periods, because during the low-water stages the loading of vessels is determined by the depth of the water, which will carry them over certain sills and bars; and during the high-water stages of course people living on low ground adjacent to the river want to know whether they are going to be flooded or not. So that these river reports then are used to determine the stages of the rivers, and the cotton, wheat, and corn reports are used just to give the commercial interests a knowledge of the daily conditions under which crops are progressing. There is no very great difference, if you will notice, in the emoluments paid to each of these different observers.

The CHAIRMAN. Then the expenditures that come under these headings or designations are for observations that are made more specifically for the benefit of those particular crops?

Professor MOORE. Precisely.

The CHAIRMAN. Proceed with your statement.

Professor MOORE. You asked me to say something about the utilities of the various warnings of the service.

The CHAIRMAN. We will conclude the examination with a discussion as to the utility of your Bureau, and we will leave it until the last, so as to cover the whole ground at one time and have it all in one place.

Professor MOORE. Very well.

The CHAIRMAN. I notice here an estimate in reference to the amounts expended for rent, on pages 52 and 53. The total is \$62,248.04. I would like to inquire under what circumstances the department rents these various buildings. Do you do it on leases; and if so, are they annual leases?

Professor MOORE. We make our leases annually, for the annual periods. It is provided that we shall have the option to renew.

The CHAIRMAN. You make no leases running longer than a year?

Professor MOORE. No leases running longer than a year.

(Witnesses: Moore, Zappone.)

The CHAIRMAN. For what are all these rentals paid, and in what way do they become necessary?

Professor MOORE. There are nearly 200 meteorological stations outside of Washington that are either in rented quarters, in public buildings, in quarters given to us free of rent by some educational institution in return for our presence there, or in buildings that are owned by the Government itself and that were specially built for Weather Bureau purposes. I presume we must have a hundred stations that are in rented quarters. I am giving that number, 100, as an estimate.

The CHAIRMAN. I understand; that is an estimate.

Professor MOORE. But I think it is likely that that is about right, is it not, Mr. Zappone?

Mr. ZAPPONE. I should think, as blocked out here, about 125.

Professor MOORE. Our procedure is to go to a city and to select the top of some building that is the best fitted for meteorological purposes; where there are no other higher buildings round about, and where we get a good exposure; where we can always get the sunlight on some of our apparatus when the sun shines, and where we can get away from live chimneys, and then we open negotiations with the owners of the property for floor space for the conduct of our station work there. We generally, nearly always, get our quarters for the ordinary rates for the space, because as a rule it is a good advertisement to have a building topped with the Weather Bureau apparatus, and the location of a Weather Bureau station in such a building is advantageous to the building.

The CHAIRMAN. Your idea is that as a rule you get a more favorable rate of rental than private individuals?

Professor MOORE. We do in many cases. We used to get a marked reduction. But in later years, since they have begun to put such very expensive buildings in the larger cities, the rule has sometimes worked the other way; some building would be so eminently the proper place for our observations that they would turn around and say, "You pay us what it is worth; there is no other building in the place as good for your purpose as ours." So that we pay the full commercial rate there. But we have no place where we pay more than the commercial rate.

The CHAIRMAN. Are you not able to get your leases on time?

Professor MOORE. The law does not permit us to make a lease for more than a year.

The CHAIRMAN. You have not any power to contract for more than a year?

Professor MOORE. No, sir. I think it would be well if we had the power to contract for our Weather Bureau stations for ten-year periods.

The CHAIRMAN. Do you not find in the larger and growing cities that there is a continual increase in the price for rent?

Professor MOORE. I find that there is such a marked increase that I have a note here to ask the Agriculture Committee for an addition of \$10,000 to our fund to provide for the increase in the rentals of our offices.

The CHAIRMAN. Could you make any approximate estimate of what would have been saved the Department in the last ten years if you had

(Witnesses: Moore, Zappone.)

been able to make contracts for rents extending over ten years' time, so as to take advantage of the relatively low rate at the time when the contract was made; that is in localities where there have been pronounced increases?

PROFESSOR MOORE. I would say that we would have saved at least 10 per cent, possibly 20.

THE CHAIRMAN. That is, you would have made an annual saving on your annual rents of 20 per cent if you had been able to make relatively long-time leases—five years to ten years, or longer than that?

PROFESSOR MOORE. Yes; but there is an advantage much greater to the Government than that of making a saving on account of the increased rentals, and that is the continuity of the observations at a regular place, at a given elevation.

THE CHAIRMAN. That is a matter of efficiency of work, rather than of saving of expense to the Bureau?

PROFESSOR MOORE. Yes.

THE CHAIRMAN. Of course that is an element involved in it, to be sure. Do you have much difficulty in being obliged to leave quarters now and then or are you able to remain almost continuously where you desire, so long as you keep up with the rental as it may increase from time to time?

PROFESSOR MOORE. That is, where we are allowed to stay?

THE CHAIRMAN. Yes.

PROFESSOR MOORE. Provided that for the coming year we pay the increased rental that has been demanded of the other tenants, but in many cases we have the option to renew or not as we see fit. We always try to secure such option.

THE CHAIRMAN. But you are subject to such increase of rent as they see fit to ask from year to year?

PROFESSOR MOORE. Yes; in some cases.

THE CHAIRMAN. Do you make leases during the year now; do you make leases for a year's time now or do you simply occupy under oral contracts?

PROFESSOR MOORE. We always make leases.

THE CHAIRMAN. You always make written contracts?

PROFESSOR MOORE. Yes; do we not, Mr. Zappone?

MR. ZAPPONE. Yes; always.

MR. SAMUEL. Do you find many instances of taking advantage of you—of their advancing the rent where they think they have you at their mercy?

PROFESSOR MOORE. Sometimes we have a case of that kind, as, for instance, where they find we are located and it will cost the Government considerable to shift the location, because we must establish the exact altitude of the barometer above sea level, getting the level from some stable bench mark, and we have to bore down through the roof and up through the floors to carry cables to operate automatic instruments in the office that respond in accordance with varying meteorological conditions on the roof, all of which involves considerable expense to establish a meteorological station. When that year runs out sometimes we get a demand for an increase of rental, which we must pay if we have no option to renew at old rental. I think occasionally the demand may be made with the

knowledge that we have gone to considerable expense and that we would rather pay a little increase than pull up and move. There would be a considerable advantage to the Government if we could make five-year contracts or ten-year contracts, binding both the Government and the owner of the premises. Five years would probably be sufficient.

The CHAIRMAN. Does the Government have any stations of its own?

Professor MOORE. It owns 40 or 50 Weather Bureau buildings?

The CHAIRMAN. Where are they located?

Professor MOORE. I could not say from recollection. There is one at Burlington, Vt., one at Block Island, one at Narragansett Pier, one at Cape Henry, Va., one at Jupiter, Fla., one at Key West, one at Sand Key, Fla., one at Oklahoma City, one at Sault Ste. Marie, Mich., one at Bentonville, Ark., one at Springfield, Ill., and so on. There are about 50.

The CHAIRMAN. Those are good illustrations. Are those you have mentioned typical?

Professor MOORE. Yes; they are typical.

(At this point Mr. Flood entered the committee room, and Mr. Candler left the committee room to attend the Committee on Agriculture.)

The CHAIRMAN. Are these stations uniform in character?

Professor MOORE. Not entirely.

The CHAIRMAN. What is the predominating type of station?

Professor MOORE. You take the station at the mouth of the Chesapeake, at Cape Henry. That station takes daily meteorological observations and telegraphs them to headquarters. It receives storm warnings and displays signals at the entrance to Chesapeake Bay and, what is more important, it reports the incoming and outgoing vessels for the benefit of marine commerce.

The CHAIRMAN. Now, give us the general character of that station—of the structure, that is?

Professor MOORE. There is a man on duty there at all hours of the day and night to report the passing vessels for commerce.

The structure is a frame building, erected at a cost, with the various repairs and improvements that we have put on it, of about \$15,000, I would say. It has two porches. Those porches extend on three sides of the building, so that the vessel reporters watching the passing of vessels can travel around on the outer porches.

The CHAIRMAN. By the way, what occasion do they have to watch the passage of vessels?

Professor MOORE. That is one of the functions of the Weather Bureau, as provided by the act organizing the Bureau, to report information of benefit to the marine interests, so that at many buildings that are located on the coast we report the passing of vessels of commerce.

The CHAIRMAN. How could the passing of vessels of commerce have anything to do or contribute anything to reaching results as to the condition of the weather?

Professor MOORE. It does not; but it is one of the duties imposed on the Bureau by law, and as the Bureau has many stations on the coast it can do that work more easily than anyone else.

(Witness: Moore.)

The CHAIRMAN. Scientifically it is something that the Bureau has not any interest in or any connection with?

Professor MOORE. Not scientifically; no.

The CHAIRMAN. It does not have any proper relation to the work of the Weather Bureau?

Professor MOORE. No; except that the Weather Bureau is intimately associated with vessel masters and intimately associated with all marine commerce.

The CHAIRMAN. Of course, if the statute requires it to be done, that settles it.

Professor MOORE. And, of course, we are better located to do it than anybody else, because the observers must be there to display their warnings and take observations.

The CHAIRMAN. Is it not true that statistics of that kind are collected by other Departments of the Government?

Professor MOORE. No, sir.

The CHAIRMAN. Do not the light-house keepers collect them?

Professor MOORE. No, sir.

The CHAIRMAN. They have heretofore, up on my coast, to my personal knowledge.

Professor MOORE. I think the light-house people have not entered into the reporting of vessels. They seldom have cable or wire communication with the mainland. I do not know of any such cases. There may be.

The CHAIRMAN. I do not know that they perhaps enter into the business of reporting vessels, but up on my coast, heretofore at any rate, they have kept tab on the number moving back and forth.

Professor MOORE. That may be. In some cases the maritime associations themselves maintain stations for the reporting of the vessels that pass.

The CHAIRMAN. Yes.

Professor MOORE. As at Sandy Hook, for instance.

The CHAIRMAN. Do your men that occupy that station that you have just been describing live there?

Professor MOORE. The man in charge lives in the building, and one room may be assigned to each assistant that desires to room in the Government building.

The CHAIRMAN. Does he live there with his family?

Professor MOORE. Yes, sir; he lives there with his family, and is allowed heat, light, and quarters, and his salary is adjusted in accordance with the fact that he does receive heat, light, and quarters.

The CHAIRMAN. Then the custom in that respect, at any rate, is that the quarters that he receives here are additional to the salary that he receives, so that these salaries do not represent the aggregate compensation that a man receives?

Professor MOORE. It does not represent the aggregate salary that a man receives who occupies quarters.

The CHAIRMAN. Yes.

Professor MOORE. But a man receiving heat, light, and quarters gets less salary, less cash salary, than a man who does precisely the same duties and who does not have those other things.

The CHAIRMAN. Just give us an instance of that. Just tell us, in

(Witness: Moore.)

the first place, what class this man is in who has charge of a station like that, who gets his quarters, his light, and his heat? What class clerk is he—second, third, or fourth class?

Professor MOORE. He is an observer.

The CHAIRMAN. In what class?

Professor MOORE. This man, for instance; in this case is a \$1,200 observer.

The CHAIRMAN. Where is there another observer of the same class doing the same work that receives such compensation?

Professor MOORE. We have no other observer of precisely his class in the service; so that I can not compare him very well. We have another station at Jupiter, where the observer gets \$1,000 and quarters, fuel, and light; but he has a much less responsible place than the man at Cape Henry.

The CHAIRMAN. He is in the \$1,000 class?

Mr. FLOOD. The observers are not in classes, are they? You have not got them divided into classes?

The CHAIRMAN. Have you not? I understood that all your men were divided into classes.

Mr. SAMUEL. Take a \$1,200 man.

Professor MOORE. The \$1,000 man if he had not these quarters would be getting \$1,200.

The CHAIRMAN. Let me make this inquiry: Are all the men—all the employees of the Department—segregated into classes?

Professor MOORE. Yes.

The CHAIRMAN. That is what I understood.

Professor MOORE. Yes. As I stated before, wherever the employee has that allowance he gets less salary. Now, I can make it plainer—

The CHAIRMAN. What is the highest salary paid any of the men in your service in any of these places—\$1,400?

Professor MOORE. The highest salary paid to an observer is \$1,200.

The CHAIRMAN. What is the highest salary paid to any of these men in any of these places? You say your service is segregated into classes; what is the highest salary paid in any of those places?

Professor MOORE. If you will let me approach that in this way, the highest salary paid to an observer is \$1,200.

The CHAIRMAN. Yes.

Professor MOORE. But a man of the rank of an observer could have charge of a small, rather unimportant station. The next rank is that of the local forecaster or section director. He begins at \$1,400. He may be a local forecaster if his work is principally that of a forecaster, or section director if his work is principally that of a climatologist; so that the lowest salary of a section director or forecaster is \$1,400, but it may go up to \$2,000, according to the importance of the station that he has charge of. For instance, the section director at Carson City gets \$1,400 for studying the climatology of Nevada. The section director studying the climatology of Ohio gets \$2,000. There is the extreme range. The local forecasters or station directors are graded from \$1,400 to \$2,000, the salary depending upon the importance of the assignment, the amount of work, and the importance of the stations at which they serve. Next beyond the \$2,000

(Witness: Moore.)

grade comes that of district forecaster, and there are seven district forecasters in the Weather Bureau. They receive \$2,400.

The CHAIRMAN. That covers the whole United States?

Professor MOORE. Yes. For instance, the man at Boston is district forecaster, John W. Smith. He makes the forecasts from the morning report for all of New England, and he gets \$2,400. At New York another district forecaster gets \$2,400. At New Orleans for the West Gulf States, at Denver for the Central Rocky Mountain plateau, at Portland for the northwest corner of the United States, the district forecasters get \$2,400. Then there are two inspectors who receive \$2,500, only \$100 more than a district forecaster. They are allowed \$100 more than the district forecaster so as to give them a slightly increased rank over the district forecaster, because many times they have to inspect a district forecaster, and we believe that a man's salary should be some way proportionate to his rank or the importance of the duties he has to perform.

The CHAIRMAN. The duties performed are the criterion of rank, as I understand you?

Professor MOORE. Yes. Then there is a grade above that, the grade of professor, the salary of which may be \$2,500 or may be \$3,000. It is optional with the head of the department which it shall be. Two of our forecasting districts, namely, the one at Chicago, which is a very large and important one, and the one at San Francisco, which is also large and important, are presided over by \$3,000 professors. That is the highest salary we have in the service, \$3,000. In other words, the salaries of the Weather Bureau range from \$360 per annum to \$3,000, which does not include the Chief, who gets \$5,000.

The CHAIRMAN. Graded, as I understand, in accordance with the efficiency of the service rendered and its importance to the Government?

Professor MOORE. Precisely.

The CHAIRMAN. Let me go back to this Cape Henry case.

Professor MOORE. Yes.

The CHAIRMAN. What do you estimate the real compensation is that this man located down there receives? That is, he is on the roll at \$1,200, but he is furnished with light and heat and a house. What does that all aggregate? What compensation does that really represent?

Professor MOORE. It aggregates about \$1,500.

The CHAIRMAN. Does anybody else occupy that station but this man in charge, except these assistants have a room they can occupy if they like?

Professor MOORE. No one else.

The CHAIRMAN. The man in charge has a family?

Professor MOORE. Yes; the man in charge has a family.

The CHAIRMAN. He lives there with his family?

Professor MOORE. He lives there with his family.

The CHAIRMAN. The Department furnishes him with the rent there, and the light and heat?

Professor MOORE. Yes.

The CHAIRMAN. What other use do you have for light and heat at this station except as this man uses it, and his family?

(Witness: Moore.)

Professor MOORE. None, except to heat and light that portion of the building used for the service of the Government.

The CHAIRMAN. What does it cost the Government to heat and light that building per year?

Professor MOORE. I could only guess at that.

The CHAIRMAN. Of course there is a way of mathematically ascertaining it?

Professor MOORE. We can get at it precisely, to the cent.

The CHAIRMAN. Let us have your idea of what it is.

Professor MOORE. I do not think that building costs over \$100 a year to heat, probably \$125. Probably \$125 to \$150 would heat and light it.

The CHAIRMAN. How do you light it?

Professor MOORE. With lamps.

The CHAIRMAN. Kerosene lamps?

Professor MOORE. Yes; with kerosene lamps. We have no gas at Cape Henry.

The CHAIRMAN. There is no gas at Cape Henry?

Professor MOORE. No; the building is heated by coal and lighted by means of oil. They use the oil for the storm signals also.

The CHAIRMAN. How much of a family has he?

Professor MOORE. I could tell you that from my card catalogue. I think he has one or two children. I put this man there first at \$1,000 with these emoluments; after good service he was promoted to \$1,200.

The CHAIRMAN. What he gets amounts to \$1,500, including light and heat and the rent. Your approximate estimate is that it represents to him \$1,500. That would make \$175 for rent. That is the estimate you make, approximately; for the rent, light, and heat would be \$300, with \$125 for light and heat—

Professor MOORE. But you must bear in mind that there are large Government offices there that are lighted and heated that you can not charge to him.

The CHAIRMAN. I am just getting at the elements that make up the total. That would make \$175 a year for rent. Now, four large Government offices—or small offices—and the rest of the cost is for light and heat there for the man and his family. I simply wanted to get at it.

Professor MOORE. Yes.

The CHAIRMAN. How much, approximately speaking, of a compensation do your men receive in addition to the rent, light, and heat—that is, about what percentage?

Professor MOORE. There are a few over 40—I think about 40—stations. Not far from 40 one way or the other—I can give you the exact number if I count it up here—where they receive quarters and these allowances.

The CHAIRMAN. I suppose it is obvious, or ought to be obvious, that when these stations are so arranged as to furnish living accommodations for the men they are larger than they would be if only arranged for office purposes?

Professor MOORE. That is true.

The CHAIRMAN. That, I suppose, is obvious?

Professor MOORE. That is true. But we do that because if a man lives on the premises he is there at all hours of the day and night to

(Witness: Moore.)

attend to the automatic instruments that work every instant of the time, and I find that we get pretty nearly the services of one and a half men from one man if he lives on the premises.

The CHAIRMAN. Yes.

Professor MOORE. Because many of the observations are to be taken at 4 o'clock in the morning, and the man is right there to take the observation.

The CHAIRMAN. How long have you been constructing these stations which approximate \$15,000 apiece?

Professor MOORE. There were a few of these built before I came to the head of the Bureau—only at seaports—along the seashore, rather.

The CHAIRMAN. Then they have been built during the last fifteen or twenty years?

Professor MOORE. During the last ten years. Since I have been at the head of the service, the Agricultural Committee has gradually authorized the erection of buildings away from the seashore. They made it an experiment first, and authorized us to construct five, and then we picked out places where we could make a saving in rentals by putting up a building and have much better accommodations, with a better site for meteorological purposes, and on our showing that it was a good business investment, taking into consideration the amount of rental we were paying and the amount that it would cost us to get ground and erect buildings, the Agricultural Committee has gradually increased the number of the buildings that we are authorized to build, until last year they raised it to nine, and my estimates this year call for nine buildings, which I presume will be authorized by the committee.

The CHAIRMAN. Then, as I understand it, all of this construction has been done under the authority of and by the direction of the Agricultural Committee?

Professor MOORE. Entirely so.

The CHAIRMAN. They have determined the number, and determined the amount to be expended therefor?

Professor MOORE. They have, sir.

The CHAIRMAN. So that everything that you have done in connection with the construction of these stations has simply been administrative in its character and carrying out legislation previously enacted upon the recommendation of the Committee on Agriculture?

Professor MOORE. Precisely; the committee in their act providing that this shall be done under the supervision of the Chief of the Bureau.

The CHAIRMAN. Yes; so that all you practically had to do was to carry out the provisions of the law that had been specifically enacted in each case?

Professor MOORE. Yes.

The CHAIRMAN. Have you any stations anywhere that have cost you more than \$15,000?

Professor MOORE. I do not recall any single building that has cost us more than \$15,000, except at our research station at Mount Weather, Va., over near Bluemont. There we have eight or nine buildings.

The CHAIRMAN. What did that plant cost?

Professor MOORE. Up to last winter—I took an itemized statement

before the Agricultural Committee, showing that we had spent about \$120,000 up to that time.

The CHAIRMAN. What did you say—up to that time? Is it in process of construction now?

Professor MOORE. It is still in process of construction.

The CHAIRMAN. What is the character of the plant that is going up there?

Professor MOORE. That is an extensive institution.

The CHAIRMAN. Was that authorized by the Agricultural Committee?

Professor MOORE. Yes; it was.

The CHAIRMAN. When?

Professor MOORE. We began work about five years ago.

The CHAIRMAN. You can put into your answer the provision in the bill which authorizes that. About five years ago, you say?

Professor MOORE. Yes.

The CHAIRMAN. What was the general provision of the bill that authorized the beginning of this plan?

Professor MOORE. There is nothing in any of our bills that specifically says to erect anything at Mount Weather, but the general authority for the—

The CHAIRMAN. As I understand you, the Agricultural Committee determined the number and fixed the amounts; and did they do so in connection with your Mount Weather proposition?

Professor MOORE. They leave in all cases the location of these buildings to the discretion of the Bureau and the approval of the Secretary.

The CHAIRMAN. Do they leave the amount to the discretion of the chief of the Bureau?

Professor MOORE. Yes; they put in a lump sum; the law reads "not to exceed so much money for so many buildings."

The CHAIRMAN. I did not get that impression. I can see what idea you intended to convey, but the impression I got from your answer was that the Committee on Agriculture fixed the number of buildings and the aggregate to be expended in each instance; but do I understand now that they make a lump-sum appropriation and if the head of the Bureau sees fit to divert that to one building he can do so, instead of building a half a dozen buildings?

Professor MOORE. I can read it to you.

The CHAIRMAN. Is this the largest plant you have?

Professor MOORE. Yes; the largest.

The CHAIRMAN. Now, what I would like to get at is the authorization under which the Bureau has constructed, or started to construct, this plant. Perhaps I may inquire right here, What is this plant going to cost when it is done? You say that up to date you have expended \$120,000?

Professor MOORE. About \$200,000; from \$200,000 to \$250,000 when finished.

The CHAIRMAN. That is ten or fifteen times larger than any other you have?

Professor MOORE. Precisely. It is an entirely different institution from any other. This is a research institution.

The CHAIRMAN. It is an entirely different proposition?

(Witnesses: Moore, Zappone.)

Professor MOORE. Oh, yes; it is an entirely different proposition. This is a research institution for the investigation of scientific problems concerned with the physics of the air.

The CHAIRMAN. And you say that this project was considered and authorized by the committee?

Professor MOORE. This project was considered fully by the Appropriations Committee.

The CHAIRMAN. The Agricultural Committee?

Professor MOORE. Yes, sir. And on my statement to the committee that under existing law we had ample authority to construct that place, there was no change in the law, the committee realizing that the appropriation here gave us the authority and vested in the Department the discretion to erect these buildings whenever we saw fit, unless there was some limitation placed upon our authority.

The CHAIRMAN. Was there any change in the authority thus conferred from the authority that had been conferred from time to time?

Professor MOORE. Not a bit. There was no necessity for it.

The CHAIRMAN. Do you understand that under the kind of authority that the Committee on Agriculture have vested in your Bureau it is perfectly competent for the Bureau to embark in the expenditure of \$200,000 on a single plant now—for another one if they wanted to? Is that your construction of it?

Professor MOORE. I can not say that. Under the authority now conveyed we could add to that plant a building or two each year.

The CHAIRMAN. But I understood you to say that you originated the plant under this authority. If you originated one, why can you not originate another?

Professor MOORE. So I could, with the full knowledge of the committee and the approval of the Secretary of Agriculture, each year reporting to them precisely what had been done; and if they wish to curtail my authority, they can do so.

The CHAIRMAN. I would really like to see the character of the authority that the committee has conferred upon the Department to go to the extent of creating an expense of \$200,000.

Professor MOORE. They have not gone to the extent of creating an expenditure at one time of \$200,000.

The CHAIRMAN. I am not now discussing the wisdom of the matter, but I mean to say that I never knew any other instance where that extent of discretion was conferred upon the head of a bureau, or of a Department, for the construction of any sort of a plant for carrying out any of the functions of the Government.

Professor MOORE. The Bureau in expending \$200,000 there has been gradually adding to the plant year by year. We have not spent probably more than \$25,000 or \$30,000 in any one year.

The CHAIRMAN. I do not think that a bureau chief, unless he has some authority from an act of Congress, could originate a proposition that is going to cost \$200,000. Of course if you have an authorization from Congress, that covers that ground.

Mr. ZAPPONE. Is there any objection to my turning over to Professor Moore at this point the testimony that he gave before the Committee on Agriculture?

Professor MOORE. We have the authority here. It has been gone over with the Agricultural Committee time and time again. They

know precisely what we are doing there. Members of the committee have been up to that plant, and the committee is fully cognizant of the work, and the law is ample to go ahead with the work.

The CHAIRMAN. I will suggest just right on that point. Of course I do not know what the understanding of the committee is——

Professor MOORE. Let me read the authority.

The CHAIRMAN. Just a moment. I was going to suggest this: You began this building about five years ago?

Professor MOORE. These buildings; not "this building."

The CHAIRMAN. This plant?

Professor MOORE. This plant.

The CHAIRMAN. Now, do I understand that the authority that you had five years ago is identical with the authority that you now propose to read?

Professor MOORE. Yes, sir.

The CHAIRMAN. Then it went no further, but did go as far?

Professor MOORE. Yes.

The CHAIRMAN. If that is the case, what you read now will cover the whole ground, so that we will know exactly on what basis and under what circumstances the expenditure was incurred?

Professor MOORE. Yes.

The CHAIRMAN. What are you reading from?

Professor MOORE. I am reading from page 3 of the act making appropriations for the Department of Agriculture for the year ending June 30, 1906. This reads:

Buildings, Weather Bureau: For the purchase of sites and the erection of not more than five buildings for use as Weather Bureau observatories.

That language is specific. We can erect five Weather Bureau observatories at Mount Weather, or wherever else we want to put them up.

The CHAIRMAN. You mean that a proper and fair construction of that language would enable you to locate five observatories on one spot?

Professor MOORE. Precisely; if it was deemed advisable to do so.

The CHAIRMAN. I disagree with you. I do not think that is a proper construction, if you will allow me to say so.

Professor MOORE. But nothing has been done like that.

The CHAIRMAN. But you think you have this right. Now, as I understand, that is all the authority that you had——

Professor MOORE. No; I have not got through reading it.

The CHAIRMAN. What other authority have you got to build a plant like this?

Professor MOORE (reading):

And for all necessary labor, materials and expenses, plans, and specifications, to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstaff, and storm-warning towers to properly equip these stations.

That is all.

The CHAIRMAN. Do you not think, then, that the word "stations" there would indicate separate stations?

Professor MOORE. I do not know. That is open to——

(Witness: Moore.)

The CHAIRMAN. As indicating that there is to be an observatory in each station?

Professor MOORE. That is open to——

The CHAIRMAN. Now, is it thinkable that you could put five observatories in one station?

Professor MOORE. We have not done so in any place here.

The CHAIRMAN. Your idea is that under the language that is used this would confer the authority upon the Chief of the Bureau——

Professor MOORE. The idea of the Appropriations Committee itself, when discussing it, was that this authority was ample for us to go ahead each year and add one or two buildings to Mount Weather, as we might see fit. That is the point.

The CHAIRMAN. I understand the point you are getting at is that the language you have just given is all the authority you have under the law for creating this plant; but that in conversations with, or at hearings before, the Agricultural Committee, they agreed with you that you could go ahead and originate this plant, which will ultimately cost \$250,000, under this provision of the law. Do I get it correct? So that whatever you have done in connection with the creation of this \$200,000 plant—and we will talk about that plant a little later on—is done by virtue of and under the legal authority of the language that you have cited, and also by virtue of conferences with members of the Committee on Agriculture, who have agreed with you that under that authority you had power to originate and create that plant. Do not I state it correctly?

Professor MOORE. I think you state that about right, Mr. Chairman, except that there is a further authority that began last year.

The CHAIRMAN. That does not originate?

Professor MOORE. No, sir.

The CHAIRMAN. No; unless they have something ratifying whatever you have done. Have they?

Professor MOORE. Nothing further than that.

The CHAIRMAN. Let us go on, then. So that, as a matter of fact, if there is any criticism about this expenditure and the creation of this plant at an expense of \$250,000——

Professor MOORE. It has not cost \$250,000.

The CHAIRMAN. No; but you are going to have it cost that.

Professor MOORE. I may not; because I may stop any day. But whatever we have got is good and useful for this purpose so far.

The CHAIRMAN. I want to get your notion about it. Let me see if I get it right. Of course, I want you to state it from your own point of view. I got the impression that your idea was when you got this plant completed as it was originally intended, so as to perform all its functions in the most useful and effective and valuable manner, that you would need a plant, or would have a plant, that would cost \$250,000, but that you have such a plant that you could now stop without impairing the efficiency of what you now have without going on to the completion of the full project. That is your idea, is it not?

Professor MOORE. If you will allow me, I will answer that question fully; I should rather predicate my answer——

(Witness: Moore.)

The CHAIRMAN. I would be glad if you would answer it in your own way.

Professor MOORE. In my own way, if you please.

The CHAIRMAN. Yes.

Professor MOORE. When this institution was begun we did not know what it would cost. We built slowly each year that which we knew that we could use at that time and make good use of. I have said to you that if I were going ahead to construct this plant now it would probably cost \$200,000 or \$250,000, away along in the future some time; but I wish to make plain that with each step in the progress of this work we have only built a little each year, just that which we knew we were going to use, and when it was done we could stop right there, and we would have a useful institution for the purpose for which it was designed. As that idea has grown upon us, and as I have come before the committee year after year to explain how far we had gone, and I thought we might go a step further, the committee have thought it wise, and have agreed that under this authority to construct five Weather Bureau buildings each year, we might go ahead gradually adding to the institution.

Now, there will come a time when the committee will consider it wise to stop further construction at Mount Weather. I do not know when that time will be, and I presume they do not know. It depends upon whether at the end of each year there appears to be necessity for further construction, as the development of the science of meteorology seems to indicate; so that when I say that it will cost \$200,000 ultimately, or possibly \$250,000, for expenditures on the institution I am simply making a forecast on the future. I do not know that it will be so. And it was not known when we began how much money was to be spent there. We did not begin with the definite plan of spending \$250,000 on that institution. No; we began with the proposition that we would purchase a tract of ground up on this mountain. We needed it. In the first place, we wanted an observation from that first range of the Blue Ridge to use in our forecasting here; and as we could buy a tract of 90 acres for a mere pittance, something like \$2,000 or \$2,500, we thought that we had better buy it. Then we could have a place on the mountains that we could enlarge, and it seemed advisable to do so. So the simple weather station was constructed from which we might get weather observations.

The CHAIRMAN. What was that, an observatory?

Professor MOORE. It was one building in which the observer might live, and in which a regular observation station might be carried on.

The CHAIRMAN. Would you call that an observatory typical of these others you have been describing?

Professor MOORE. Yes; that was the first building. Then the location seemed to be desirable for research work. We had reached that point in the development of meteorological science where we were making the best forecasts that it was possible for us to make with our knowledge of the science. Now, the proposition came up to the committee in this way: This Weather Service, which spends \$1,300,000—that was the amount they were expending then, about—is making the best forecasts it can make with the development of the science that is back of the forecasts. Are you content that we should lie on our oars and carry on this work without experimentation or without

(Witness: Moore.)

endeavoring to add to the science by experimentation? If so, we are content. We are here to carry out the wishes of the committee and of Congress. But if you want us to go ahead and delve into these secrets of nature, which we are more competent than anybody else in the world to inquire into because of our long training, you will have to authorize us to gradually add to some one of our stations, and this one at Mount Weather is preferable, because it has the best location.

The CHAIRMAN. To do what—what for? I would like to know why you could not do that work in Washington. Do you have to go up on this hill to do anything but make observations?

Professor MOORE. You have to go where you can get the proper meteorological conditions. You have to go far from the city and far from trolley lines and things of that description.

The CHAIRMAN. To make additional observations? In the first place, of course, these questions may seem more or less unintelligent, because I do not know anything about the proposition.

Professor MOORE. Yes.

The CHAIRMAN. Let me get it in my mind. In the first place, you have an observatory. Is that for the purpose of taking observations? Now, were there any other observations necessary to take in order to perfect the science in the manner in which you have described; and if so, what were they?

Professor MOORE. I was leading up to that.

The CHAIRMAN. I beg your pardon.

Professor MOORE. It was necessary, if we were to improve the work that we are doing, that we learn something more about the science of it, about the physics of the air.

The CHAIRMAN. My inquiry was, Was it necessary to take any additional observations other than those provided for and made possible by the observatory that was erected?

Professor MOORE. Yes.

The CHAIRMAN. And if so, what kind of observations was it necessary to make? What facilities were not provided by the observatory already erected? That is what I wanted to get in my mind.

Professor MOORE. In the first place, it is necessary to take magnetic observations, and in order to install a magnetic observatory it is necessary to get away from trolley lines.

The CHAIRMAN. Why might not these magnetic observations be taken in connection with the observatory that is already constructed? What is to hinder? What is the physical or scientific difficulty in taking your magnetic observations, and in connection with the observatory?

Professor MOORE. They are being taken in connection with, but not in, the first observatory that was constructed. In a magnetic observatory the walls must be at least 6 feet thick and be insulated so that there will not be a change of over one-tenth of 1 degree centigrade between summer and winter where the delicate instruments are installed. They are specially designed buildings; people can not live in those buildings; they are built for a constant temperature.

The CHAIRMAN. They are not necessarily buildings to live in. Why could they not have been made adjuncts to that observatory?

Professor MOORE. They could not have been.

(Witness: Moore.)

The CHAIRMAN. Why not?

Professor MOORE. It is utterly impossible, simply because you have got to have those buildings constructed without any metal except copper. We certainly would not construct buildings that we had no use for.

The CHAIRMAN. I wanted to know what the use was.

Professor MOORE. I am trying to answer you.

Mr. FLOOD. I suppose those are very expensive buildings?

Professor MOORE. There are two small buildings, one absolute and one variation building.

Mr. FLOOD. I suppose they are more expensive than the ordinary observation building?

Professor MOORE. No; they are smaller.

The CHAIRMAN. How large are they?

Professor MOORE. The interior area of each building is about the size of this room.

The CHAIRMAN. Of the two of them?

Professor MOORE. No; each.

The CHAIRMAN. Each building is the size of this room?

Professor MOORE. Each would aggregate about the area of the interior of this room; there is an upper room and a basement room.

The CHAIRMAN. And they cost how much?

Professor MOORE. Anywhere from \$15,000 to \$20,000. The instruments in them are very delicate apparatus. Many of them were made in Europe and they are extremely sensitive. They have to be very carefully adjusted and handled.

The CHAIRMAN. They are the most expensive kind of instruments?

Professor MOORE. They are the best of their kind we could find anywhere in the world.

The CHAIRMAN. And they are the most expensive constructed, I suppose?

Professor MOORE. They are, sir. Those instruments recorded the pulsations of the ether at the time of the eruption of Vesuvius.

The CHAIRMAN. You have got that here?

Professor MOORE. Yes; the eruption of Vesuvius. Those waves originated there and came around the world.

The CHAIRMAN. How were you able to determine that that was a fact?

Professor MOORE. Coincidentally; they were simultaneous. These electric waves move with the velocity of light.

The CHAIRMAN. There was no other explanation of the manifestation, you say?

Professor MOORE. No.

The CHAIRMAN. And therefore you attributed it to Vesuvius?

Professor MOORE. Yes. Our seismograph here in Washington recorded the San Francisco earthquake, but that caused earth vibrations. It took eight minutes for the waves to come across the continent, while these ether waves from Vesuvius came here almost instantaneously, traveling at the rate of 186,000 miles a second. In the installation of these instruments it is necessary to get away from the city.

Another kind of observation is an observation of temperature and of pressure at high levels. For that it was necessary to construct one

(Witness: Moore.)

separate building, in which we have installed an engine to run an electrolizer, which decomposes water and gives us the hydrogen that we need to inflate our balloons. We have another building adjacent to the power plant, which is a little round rotating building. You turn a crank and it rotates. One side is flat and the other is oval; the open side is always kept to leeward. From that building we fly kites that go to a great height, getting temperatures at high altitudes. That building gets its power from the power plant. When these kites get out 2 or 3 miles it takes considerable power to draw them in; we draw them in by power. We have only begun on that line of work. We have just completed the kite house and the power plant. In that power plant we have shops for wood workers and metal workers, and we make there the little balloons that we are experimenting with.

The CHAIRMAN. That is to keep your apparatus up?

Professor MOORE. Yes. Now, ultimately we intend not only to make observations at this independent station here with kites and balloons, as we are now doing, and as we are now doing in concert with certain important observatories in Europe, but we purpose within the matter of a year, or probably less, to send out small balloons to which will be attached little meteorographs, weighing about 2 pounds, which will record the temperature and humidity at these high altitudes. We propose to send out these hydrogen balloons, with hydrogen gas compressed, to probably fifty of our western stations, so that when a rain storm or a cold wave overlies the Rocky Mountain plateau and we want to investigate that particular storm, by telegraphic orders from this office I can direct, say, that three observers in each of the four quarters of that rain storm or of that cold wave shall each liberate a balloon, with its instruments, at the same instant. Those instruments will shoot right up through the cold wave or the rain storm, getting the temperature and humidity and pressure and drift away. The balloons will be made so that they will explode at an altitude of 5 or 10 miles high.

The CHAIRMAN. That is a question of atmospheric pressure?

Professor MOORE. Yes; we know the law of the decrease of pressure with elevation, and can adjust the tensile strength so that the balloon will explode where we want it to. When the balloon explodes a little parachute opens and the locked case of instruments slowly descends to the ground. It has printed upon it a reward for its return to some Weather Bureau station. When these instruments are returned to Mount Weather, the man who has the study of this problem of the upper air in charge, Doctor Fassig, who was formerly our representative at Johns Hopkins, studies all these conditions in relation to the cold wave or the storm that we are investigating. The energy of a storm is largely due to the vertical variation of the temperature. A homogeneously heated layer of air will never move unless acted upon by some extraneous force. The energy of a storm may be determined from the temperature at the top of the whirling storm, and the temperature at the bottom. We will begin to treat these storms scientifically, getting accurate data in relation to them.

Now, that is a large plan. It necessitates some expense, and a great deal of preliminary work. We are laying the foundations

(Witness: Moore.)

of a line of research such as I indicate here, at this Mount Weather institution; it is necessary for us to study this problem in this way if we are to advance in this science. We are spending a large amount of money to apply a science of which our knowledge is limited; we should learn more about it by original research such as we are inaugurating at Mount Weather.

The CHAIRMAN. This is the place which you make a clearing house for all this information?

Professor MOORE. Yes, sir. Now, you take all the observations that we make; they are collected and studied.

The CHAIRMAN. Come back now to the physical character of the plant, and how many more buildings you have there, and what use you put them to.

Professor MOORE. Very well.

The CHAIRMAN. Before you do that, there is a gentleman here, Mr. McCay, who is interested in this matter of the cables, and perhaps we may have to suspend this hearing at 12 o'clock, and I would suggest that we might call him right away. I will state what we understand to be the criticism. We understand that Mr. McCay criticises the action of the Bureau in connection with the purchase of cables, on the ground that the specifications are now so drawn that it is useless for other cable manufacturers of the country to compete thereon, and in fact, that the Department has paid considerable more money for the cable than was necessary, and that during the past ten years they have, under these circumstances, purchased largely from one manufacturer; the proposition being, I suppose, that the Government, under the circumstances, has expended more for cables than was necessary as a commercial proposition.

Now, we would like to have you address yourself right to that, and if Mr. McCay, who has knowledge about it, wishes to put any inquiries as we go on, if it is agreeable to you, we would like him to do so, and then we will have Mr. McCay make such statement as he wishes, subject to examination by Professor Moore and Mr. Zappone, so that the facts may be developed fully.

Professor MOORE. The charges are so indefinite that it is rather difficult to know what to say.

The CHAIRMAN. We swear all the witnesses that we have before us here, and so if Mr. McCay will hold up his hand I will swear him, so that any statement he may make will be under oath.

(Mr. McCay was here sworn by the chairman.)

Professor MOORE. Our bids for cables have always been open to all competition, and we have specially exerted ourselves to get the freest competition from all those who could manufacture cables. It may be germane to this case to say that in 1903 the McCay Engineering Company laid three cables for the Weather Bureau. That year the Weather Bureau separated the bids and asked for bids to be submitted for the furnishing of the cables, and also for separate bids to be submitted for the laying of the cables. That year the McCay company, being the only bidder, in fact, received the award for the laying of three cables for the Weather Bureau.

The CHAIRMAN. What year was that? Let me get that in my head.

(Witnesses: Moore, McCay, Zappone, Robinson.)

Professor MOORE. In 1903 the McCay company received the award for the laying of three cables.

Mr. McCAY. It was in 1902, was it not?

Professor MOORE. The work was done, I think, in 1903.

Mr. ZAPPONE. Mr. McCay means that it was done in 1902, but it was the fiscal year 1903.

Professor MOORE. Yes. Now, our relations with the McCay company were not entirely satisfactory. Some question arose as to their properly handling some surplusage of a cable that was laid up in Lake Michigan.

The CHAIRMAN. You mean surplus material?

Professor MOORE. Yes; after the cable was laid.

The CHAIRMAN. As to whether they should take it back or leave it on the hands of the Government?

Professor MOORE. Yes. The contract provided, as I understand it, that the surplusage they should store on the island.

Mr. ROBINSON. On the mainland? Stored on the island or on the mainland?

The CHAIRMAN. That is, you disagreed as to the construction to be put upon the terms of the contract; is that it?

Professor MOORE. Yes. We insisted that they should do that work without additional compensation by the Government. They did do it.

The CHAIRMAN. Did they finally do it?

Professor MOORE. Yes; they did that work. After the work was done and the payment was made, we received a complaint from the attorney representing Cram, Whitford & Sons Company, informing us that the McCay Engineering Company, of Baltimore, who had the contract for laying the cable to South Manitou Island, "which work was done in May last"—this is dated 1903—as the letter says, "are refusing to pay the bill rendered them by the Cram, Whitford & Sons Company for a schooner furnished by them for that purpose to the McCay Engineering Company."

Now, that was not a matter that concerned us specially, as we had already paid the McCay Company.

The CHAIRMAN. Under their contract they were to do that, I suppose; under the McCay contract they were to do it?

Professor MOORE. Under the contract they were to lay this cable, and we were to pay them. They were to pay all their own bills, and we had nothing to do with it. We had paid the McCay Company, and therefore could not take any action toward enforcing the payment by the McCay Company to them, as it was not a matter that concerned us.

The CHAIRMAN. The Department could not take care of the creditors of the McCay Company, in other words?

Professor MOORE. No. Next year complaint was also made to us by some of the workmen that laid this cable for the McCay Company that they had not been paid. I do not know anything about the merits of that case. I do not know anything about the merits of the dispute between Mr. McCay and these people. Our inspector says that while in Charlevoix, in 1903 and 1904, some men who had been employed by Mr. McCay as laborers requested him to collect amounts due from McCay of from \$2 to \$5 each.

(Witnesses: Moore, Robinson.)

Our relations with the McCay Company, while not bad, were not entirely pleasant, and the next year—

The CHAIRMAN. By the way, was there any complaint or any difficulty about the quality of the material that they furnished and its capacity to perform the service that the Department wanted?

Professor MOORE. They did not furnish the material. They only had the contract for laying the cable. They did not furnish the cable.

The CHAIRMAN. They did the work of laying it down only?

Professor MOORE. They were not cable manufacturers. They simply got the contract for laying the cable. That year, as I say, we separated our bids. We called for bids for the furnishing of the cable, which bid was not awarded to the McCay Company, and we called for bids for laying the cables, which bids were awarded to the McCay Company. They were the only bidders for laying.

The CHAIRMAN. That is, you were separating the work?

Professor MOORE. Yes.

The CHAIRMAN. One man furnished the material and another fellow laid down the material, or rather installed the material—that is the proper way to put it?

Professor MOORE. Yes. The next year we called for bids for the cable laid. We wanted to avoid any of this strife or trouble.

The CHAIRMAN. Let me go a little further.

Professor MOORE. Yes.

The CHAIRMAN. You say your relations were not entirely agreeable with the McCay Company?

Professor MOORE. Yes.

The CHAIRMAN. Were there any other items other than these you have mentioned which gave rise to the disagreeable features you have mentioned?

Professor MOORE. Those are all that have come to my attention. I do not know what their relations may have been with the superintendent of cable construction.

The CHAIRMAN. Then the only thing that led to friction between the McCay Company and the Bureau was the claim of these people who had furnished the boat and the claim of these men with bills for from \$2 to \$5, respectively?

Professor MOORE. I do not know how many men there were. Several men claimed that they were not paid.

The CHAIRMAN. But whether there was anything else you do not know?

Professor MOORE. We did not attempt to go into the merits of this case and do not attempt to go into it now. I simply mention this to show that our relations were not entirely pleasant. We did not have any severe trouble with the McCay Company, and I think the work they put down was fairly good, was it not, Mr. Robinson?

Mr. ROBINSON. Yes, sir.

Professor MOORE. At any rate, it was decided next year that we would call for bids for the cable already laid, so that we would not be involved in trouble between the man laying the cable and his workmen, so that we would be out of that entirely.

Mr. SAMUEL. What was the reason you separated the bids the year previous?

Professor MOORE. I do not know what the occasion was. Could you answer that, Mr. Robinson.

Mr. ROBINSON. The occasion was that we thought we could get the work done cheaper, but we found we could not do so.

Professor MOORE. It was an experiment, the separating of the bids.

The CHAIRMAN. Had it been the practice of the Department to separate the work prior to that time?

Professor MOORE. No, sir; this was the only case.

Mr. ROBINSON. This was an experiment.

Professor MOORE. But it did not seem to be entirely satisfactory, because we could only get one bid, and that was from this company right here, the McCay Company. The next year we called for bids on the cable laid. There was only one that year, the cable to Beaver Island.

Mr. ROBINSON. Beaver Island, yes.

Professor MOORE. We called for the bids of the Beaver Island cable, with the cable laid, and the McCay company's representative—I guess it was the gentleman here—asked to have the bids split up again, so that he, who was not a manufacturer, mind you, could bid; this we declined to do. I do not know whether the facts that I have cited form the motive for the complaint that Mr. McCay makes now. I do not know that. But whatever complaint he has in regard to our specifications not allowing free competition I would like to hear from him.

Mr. SAMUEL. Have you a copy of the specifications?

Mr. ROBINSON. Yes, sir; here is one.

Professor MOORE. I have a copy of the general specifications.

The CHAIRMAN. Such as you use in connection with this work?

Professor MOORE. Oh, yes. Do you want Mr. McCay to see it?

The CHAIRMAN. Yes.

[A copy of the specifications was here handed to Mr. McCay.]

The CHAIRMAN. Now, that covers that whole subject, so far as you are advised about it?

Professor MOORE. Here is a copy of the specifications that cover that very contract. I want to answer still further, if you will allow me, Mr. Chairman.

The CHAIRMAN. Certainly.

Professor MOORE. In 1903 we laid a cable from Point Reyes light, California, to southeast Farallone, California. That cable was furnished by the Bishop Gutta Percha Company, and laid by the McCay Engineering Company.

Mr. FLOOD. When was that?

Professor MOORE. In April, 1903. In February, 1903, we laid a cable from Key West, Fla., to Sand Key, Fla. It was furnished by the Brixey Company, which was the lowest bidder, and was laid by the McCay Engineering Company. I am calling attention to the different people who furnished cables to us in answer to his charge that we have limited our specifications so that only one concern could have an opportunity to bid on these cables.

The CHAIRMAN. That is, that the specifications practically confined it to one bidder.

(Witnesses, Moore, McCay, Robinson.)

Professor MOORE. Yes. I want to give Mr. McCay a chance to make good on the charge.

Now, in May, 1903, the cable from Sleeping Bear Point to South Manitou Island, Michigan, was furnished by the Bishop company.

Mr. McCAY. Can I interrupt at all?

The CHAIRMAN. Let the Professor complete his statement, and then after that, if it would be agreeable, I think that I will call on Mr. McCay to state his position and make his criticism.

Mr. McCAY. Very well.

Professor MOORE. I think the charge is that we limited our specifications so that only one concern could get the contract. Is that the principal charge?

Mr. McCAY. That is the principal charge.

The CHAIRMAN. In substance, that it results in unnecessary expense to the Government.

Professor MOORE. I would like to complete my answer which I commenced a few moments ago. The cable from Sleeping Bear Point to South Manitou Island, Michigan, was furnished by the Bishop company.

Mr. SAMUEL. Is that different from the Bishop Gutta Percha Company?

Professor MOORE. That is the same company, who were the only bidders for gutta-percha insulation.

In September, 1903, the cable from Block Island to Matunack, R. I., was furnished and laid by the Okonite company, the lowest bidder. They are different entirely from the Bishop Gutta-Percha Company and from the Brixey company, are they not?

Mr. ROBINSON. Yes.

Professor MOORE. In November, 1904, the cable from Manteo to Nags Head, North Carolina, was made and laid by the Bishop company. The Bishop company were the lowest bidders.

In September, 1905, we laid the cable from Charlevoix to Beaver Island, Michigan, which was made and laid by the Bishop company, who were the only bidders for gutta-percha insulation, although several other companies were invited to bid.

Mr. ROBINSON. Ten different companies were invited to bid.

Professor MOORE. That is all that I have to say now, Mr. Chairman.

STATEMENT OF MR. HENRY K. McCAY, OF BALTIMORE, MD.

(This witness had already been sworn by the chairman.)

Mr. McCAY. Mr. Chairman and gentlemen of the committee, it is perfectly true, as Professor Moore has stated, in regard to these cables, that they were all made and laid by the Bishop Gutta-Percha Company except two—that is, the one laid on Block Island and the one at Sand Key. The specifications are all drawn in this way. Here is a copy of them. It starts off "Specifications for 12 statute miles of one conductor cable, gutta-percha insulation." There is only one manufacturer of gutta-percha cable in this country, and that is the Bishop company. The Bishop company have laid and furnished to the Weather Bureau, I suppose, close to 90 per cent of all the cables manufactured and laid by them. Now, their specifications

(Witness: McCay.)

do not exclude rubber-covered cables. In fact, they go on to say that they will take bids on rubber-covered cables. When the award comes to be made the Bishop gutta-percha cable (and in this I am borne out by the testimony of Professor Moore) has always been recommended. In one case they had to take the Okonite cable and in another case they had to take the Brixey cable, because the Brixey company furnished a brass covering that prevented the cable from being attacked by the teredo down in Key West.

The CHAIRMAN. What is that, a coupling or a covering?

Mr. McCAY. It is a covering.

The CHAIRMAN. The covering?

Mr. McCAY. Yes. They thought that it would be best to put that covering on, and the Brixey company offered that covering, and they received the order for that particular cable. The Bishop company did not offer that covering, and while it is mere conjecture, I feel confident that if they had had such a covering the Bishop Company would have been recommended to have the cable. The last time the specifications came out I wrote to several cable manufacturers and asked them to submit me proposals for that, and I think that I have letters, which I have failed to bring this morning, but I think that I can furnish them, from several cable manufacturers stating that it was absolutely useless to submit a proposal to the Weather Bureau, because Mr. Robinson here and gentlemen friendly to the cable company would recommend to the Bureau to use the Bishop cable. Now, I can substantiate that by some of the best cable manufacturers of the country and by submitting affidavits that they feel confident that they have not been treated fairly by the Bureau.

The proper way to draw specifications for the cable is the way they are drawn by the Signal Bureau of the Army. They draw specifications for cable, and these cables are used all through the Philippines and throughout this whole country. The way to do it is to specify not what is to be put in the cable, but what the cable shall do; not what material goes into this cable, whether it is rubber, gutta-percha, or any other form of insulation, but the actual work that the cable shall perform and the insulation resistance per mile of this cable. Instead of doing this the Weather Bureau specifies gutta-percha cable, and there being only one manufacturer of gutta-percha in the country, of course there is only one award to be made.

The CHAIRMAN. What is the fact, if you know about it, as to the relative efficiency of gutta-percha as compared with rubber?

Mr. McCAY. Why, the rubber is equally efficient. The Government has spent over half a million dollars in Alaska and over \$2,000,000 in the Philippines, and every foot of that cable is rubber; not a particle of gutta-percha in either one of those places.

The CHAIRMAN. What is the difference in cost?

Mr. McCAY. Gutta-percha is more expensive.

The CHAIRMAN. How much so?

Mr. McCAY. You can see by the relative proposals here. They have the figures right here. I do not remember them exactly, but they are in the neighborhood of, I think, 25 per cent different. I think the Government could have saved easily 25 per cent of the cost of these cables if they had specified an insulation test on these cables

(Witnesses: McCay, Robinson.)

and specified what the cable should perform. Now, that is the way specifications should be drawn and are drawn every day by the Government.

The CHAIRMAN. Are these cables used simply for the purpose of the transmission of electricity?

Mr. McCAY. Yes; they are telegraph cables.

The CHAIRMAN. Telegraph cables?

Mr. McCAY. They are sometimes used as telephone cables.

The CHAIRMAN. They are used for the same general purpose in each service?

Mr. McCAY. Yes.

The CHAIRMAN. Who is the gentleman in the Army who has charge of it?

Mr. McCAY. General Greely. I believe not General Greely now, but his successor.

The CHAIRMAN. Gen. A. W. Greely's successor. What is his title?

Mr. McCAY. The Chief Signal Officer of the Army.

The CHAIRMAN. The Chief Signal Officer of the Army has charge of that branch of the service and the purchase of that material?

Mr. McCAY. Yes.

Mr. SAMUEL. Do those cable manufacturers base their charge of unfair treatment on past experience?

Mr. McCAY. Base their charge? Yes, sir.

Mr. SAMUEL. On past experience with the department?

Mr. McCAY. Yes; on past experience.

The CHAIRMAN. Your proposition is, briefly, if I understand it—

Mr. McCAY. That these specifications should be drawn to allow any cable manufacturer to bid. For instance, they said that they had one bid for this work. Did you mention the Tatoosh Island cable?

Mr. ROBINSON. There is no Tatoosh Island cable.

Mr. McCAY. The specifications called for it, and there was an award there.

Mr. ROBINSON. No, sir; there is a suspended wire there.

The CHAIRMAN. Your contention is that instead of specifying the material the specifications should be based upon the efficiency of the work of the cable that the cable might be able to do, and the parties should be required—

Mr. McCAY. To guarantee—

The CHAIRMAN. To guarantee that efficiency?

Mr. McCAY. Yes.

The CHAIRMAN. And your further proposition is that inasmuch as the specifications practically indicate the material, and there is only one company manufacturing cables of that material, that practically excludes all other manufacturers?

Mr. McCAY. Yes.

The CHAIRMAN. And then you go further and say that if the specifications are opened upon the basis of efficiency of the material it would make a saving to the Government of approximately 25 per cent?

Mr. McCAY. Yes; but I want—

(Witness: McCay.)

The CHAIRMAN. Very well; you go on and make your statement.

Mr. FLOOD. Let me ask you a question.

Mr. McCAY. Yes.

Mr. FLOOD. Would one of these cables last as long as the other?

Mr. McCAY. Just as long.

The CHAIRMAN. Of course, that is an essential element in the value of a cable, its durability.

Mr. McCAY. Just as long.

Mr. FLOOD. I thought that he was speaking as to the efficiency.

Mr. McCAY. No; I mean the life of the cable. The Western Union use the rubber cable almost entirely, and all the commercial companies do so, and this Weather Bureau business is only a small part of the business of this country; but it is an important part, and I think it should be thrown open to competition.

These remarks that Professor Moore made in regard to the complaints that the man made in regard to our company not settling with him in regard to the tug and scow are totally irrelevant. I settled with him. We had a dispute, and I settled with him on every item. I could not be in business to-day if I did not. I settled with him, and I think the McCay company's reputation in this country is such that we do not have unpaid bills over this country.

The CHAIRMAN. Your complaint is that the bids are not separated?

Mr. McCAY. I do wish to make that complaint. I say that they only got one bid. It is a fact that they only got one bid for the cable in North Carolina, for the reason that the cable manufacturers do not have a force of men that can go around and lay the cables, and they would not bid. But the Bishop company organized a force of men for this very purpose and were the only bidders, because the Department limits the laying and the making of the cable to the one company. They would have received quite a number of bids if they had said that they would allow rubber on the same basis, and then had separated the bids.

The year that they separated the bids they state that they only received one bid for the laying, and that was our bid. Now, although this has been some time ago, my recollection is, and, in fact I know, that they received another bid for the laying of the San Francisco cable, and I am quite sure they received a second bid for the laying of the Michigan cable. As to the Key West cable I am not positive, but I can look up the records, and I think the Professor is mistaken as to that point of his testimony. In fact, I am positive that they will save the Government considerable money if they will separate the bids. The dispute that I had with Mr. Robinson in regard to the Michigan cable, as to the surplus, was a dispute as to the interpretation of the contract. I stood up for my rights, and I had a dispute with Mr. Zappone, and both of those gentlemen have wanted to have very little to do with me since then because I insisted on the Government living up to the specifications.

The CHAIRMAN. And they insisted on your living up to them?

Mr. McCAY. Yes, sir.

The CHAIRMAN. One took one view of it and one took the other?

Mr. McCAY. No; we settled on what the specifications fairly read.

The CHAIRMAN. Whose view prevailed?

(Witnesses: McCay, Zappone, Moore.)

Mr. McCAY. I think I won out in both cases. In fact, the Government bought a cable from the Brixey company, intended for Key West, to be delivered at Tampa. Tampa is about 150 miles from Key West, and they thought that our company ought to take that cable to Key West, but after they saw that the specifications called for cable at Key West they hauled the cable down to Key West. That was one dispute I had with the Department.

Mr. ZAPPONE. May I interrupt you one moment?

Mr. McCAY. Yes, sir.

Mr. ZAPPONE. Will you give the distance from Tampa to Key West?

Mr. McCAY. I said about 150 miles.

Mr. ZAPPONE. And we felt that in hiring a tug for laying the cable he could just as well call at Tampa for the cable as at Key West, and for that reason the specifications were worded "f. o. b. Tampa," thinking that the contractor would not object to taking his tug there and getting it, which he could have done just as well as at Key West.

Mr. McCAY. It would take the tug about two days going up there to get that cable, and the tug and the tow would be worth about \$150 a day and the contractor is not going to pay that out of his own pocket. That was trivial, but it raised some friction.

Mr. ZAPPONE. We supposed that the contractor could do so without any additional expense to himself and it meant a little saving to the Government to have it shipped f. o. b. Tampa.

The CHAIRMAN. Those questions arise very frequently and do not reflect either upon the Department or upon Mr. McCay.

Mr. ZAPPONE. I mention that because I think Mr. McCay is going to mention another point that gave rise to some little trouble.

Mr. McCAY. For what?

Mr. ZAPPONE. In regard to the account for that extra haul. I was simply bringing that out.

The CHAIRMAN. The disputes between Mr. McCay and the Department are of no consequence to us except as they reflect on the feeling between them.

Mr. McCAY. I have no feeling in the matter.

The CHAIRMAN. So far as they may throw any light on that, or if there is anything in the controversies that may tend to throw light on the main question as to whether the Agricultural Department can save some money in this matter, they are relevant, because that is what we want. These things simply reflect on the reason why there is feeling.

Mr. McCAY. I think if the Department would use a broad specification and allow the bids to be separated there are ten cable manufacturers in the country who would bid on these cables. There is the Roebling company and the Okonite company and the Atlantic Cable Manufacturing Company and John F. Moore & Co., of Philadelphia, and at least three or four others that I could mention who would like to submit a proposal. But the history of the case has been that in only one or two cases has there ever been an award to any other company than the Bishop company.

Professor MOORE. There were only five cases of cables in all, so you can see what this charge amounted to; and in two cases the contract was awarded to some company other than the Bishop company.

(Witness: McCay.)

Mr. FLOOD. You had better not interrupt Mr. McCay in that way. You can ask him questions if you like.

The CHAIRMAN. I want to ask this further question, right here: What cable does the Bell Telephone Company use?

Mr. McCAY. The Western Electric cable.

The CHAIRMAN. Is that a gutta-percha or a rubber cable?

Mr. McCAY. It is a rubber cable.

The CHAIRMAN. And they do business all over the country?

Mr. McCAY. Yes.

The CHAIRMAN. What cable does this new independent telephone company use?

Mr. McCAY. Sometimes rubber cable and sometimes paper cable, but never gutta-percha. They use paper cable in twisted pairs. They use twisted-pair paper and rubber cable.

The CHAIRMAN. Where does this gutta-percha cable company get customers, if none of these big companies use their cable; if the Western Union and the Bell Telephone Company and the Independent Telephone Company do not use it?

Mr. McCAY. I am not saying that they do not manufacture good cable. I am not implying that.

The CHAIRMAN. What do they do besides manufacturing cable?

Mr. McCAY. They do other work besides cable work. They manufacture rubber-covered wire—copper wire.

The CHAIRMAN. What I wanted to get at was how generally the gutta-percha cable was in use.

Mr. McCAY. If I am correct, they have never manufactured any submarine cable but these cables for the Government.

The CHAIRMAN. As you understand it—

Mr. McCAY. The total output—the Bishop company is a small company, and I believe that 75 per cent of their output in submarine cables in the last five years has been for the Weather Bureau.

The CHAIRMAN. So that they practically have no private demand?

Mr. McCAY. Very little.

The CHAIRMAN. You say they manufacture a good cable, but it is more expensive than the rubber cable. What are the features of the gutta-percha cable that give it additional value, if any?

Mr. McCAY. Gutta-percha is a very good insulator. Beyond that it is no better than the rubber.

The CHAIRMAN. Is it superior to the rubber?

Mr. McCAY. No, sir; it has about the same efficiency. Rubber can be made just as good an insulator as the other. In fact, the difference in cost is not sufficient, as evidenced by the fact that all the cable being purchased by the Government for Alaska and the Philippines is rubber. They all bought rubber.

The CHAIRMAN. What other Government office outside of the Signal Office purchases cable?

Mr. McCAY. The Life-Saving Service.

The CHAIRMAN. Do you know what official has charge of that?

Mr. McCAY. No, sir; I do not.

The CHAIRMAN. There is the Signal Office, and the Life-Saving Bureau, and what other?

Mr. McCAY. The Navy Department.

The CHAIRMAN. The Navy Department?

Mr. McCAY. And the Army, the War Department.

The CHAIRMAN. The Signal Service is in the Army?

Mr. McCAY. A separate department beyond the Signal Service.

The CHAIRMAN. What other department makes these purchases?

Mr. McCAY. I think it is the Bureau of Equipment.

The CHAIRMAN. The Bureau of Equipment?

Mr. McCAY. Yes.

The CHAIRMAN. And in the Army?

Mr. McCAY. The cables that I am most familiar with in the Army are the cables in the fortifications. They are sometimes used, out to fire the mines, from casemates.

The CHAIRMAN. Under what bureau is that?

Mr. McCAY. The engineers have that.

The CHAIRMAN. That is, the Board of Engineers?

Mr. McCAY. They install them; and the artillery, the ordnance, keep it up.

The CHAIRMAN. Is there anything that you want to ask Mr. McCay, Professor?

Professor MOORE. Yes. I would like to ask him what is the difference in cost between gutta-percha and rubber cable?

Mr. McCAY. My recollection is that it is about 25 per cent.

Professor MOORE. May I ask Mr. Robinson what the difference is?

The CHAIRMAN. We will call Mr. Robinson later. We want to examine Mr. Robinson later and take his testimony all together. Please keep that in mind.

Professor MOORE. Very well. In the early part of Mr. McCay's testimony he said that of the five cables that have been laid, two of them were awarded to some other concern than the Bishop Company, and he indicated that if it had not been for some special reasons, those would have been awarded to the Bishop company, and he used the word "friendly" in that connection, saying that it was owing to the "friendly" relation of the Bureau to the Bishop company. What does he mean by the word "friendly?" Does he mean anything improper between any official of the Weather Bureau and the Bishop company?

The CHAIRMAN. You want to know upon what he bases that?

Professor MOORE. Upon what he based the use of the word "friendly." He has made an insinuation there against some official of the Weather Bureau.

Mr. McCAY. I do not mean any irregular friendship.

Professor MOORE. You do not?

Mr. McCAY. No, sir; I do not want to say that.

Professor MOORE. All right.

The CHAIRMAN. Are there any other facts other than those you have stated which led you to make the suggestion?

Mr. McCAY. No, sir; simply the results.

The CHAIRMAN. That is simply your inference from the conditions that you have described?

Mr. McCAY. Yes.

The CHAIRMAN. Is there anything further?

Professor MOORE. No.

Mr. SAMUEL. You complain of the lump bid?

Mr. McCAY. Yes.

(Witness: McCay.)

Mr. SAMUEL. Do you believe that that increased the cost of the cable and the laying?

Mr. McCAY. Yes.

Mr. SAMUEL. Rather than if it had been separated?

Mr. McCAY. Yes. They should separate it and take the lowest bid they can get.

The CHAIRMAN. That is, they should submit bids on both bases?

Mr. McCAY. Yes, sir; that gives opportunity to see which is the lowest right before them.

Mr. SAMUEL. You stated that there were no other bids for the making and laying together?

Mr. McCAY. Not in North Carolina.

Mr. SAMUEL. But that there would have been more bids if they had been separated?

Mr. McCAY. Yes.

Mr. SAMUEL. Is it not a fact that those firms who might have gotten the contract for making and laying the cable could have sublet the laying if they had gotten the contract?

Mr. McCAY. As a usual rule the contractor, such as myself, purchases the cable outright from the manufacturer, because the laying is the most dangerous portion, and it requires a good deal of skill to lay a cable, and the contractor has to assume that responsibility, and the manufacturer says: "No; I am a manufacturer; you take the cable and you lay it." In the laying of this cable that went from the Farallones to Point Reyes, I purchased that cable absolutely from the Bishop company, and paid for it before it left New York for the sum of \$25,000. Of course I made a commission on the purchase cost, and when the Government paid for it the Bishop company turned me over the money. But in the case of all those cables the most dangerous part is the laying, and it has got to be done by a person who is thoroughly familiar with the laying of cables, and there are very few men in this country who have laid cables to any great extent.

The CHAIRMAN. I understood Mr. Robinson to state that in that instance where the contract was made with this firm for the laying of the cable in question the experience of the Department was, as the result of that experiment, that it cost the Department more to segregate the work and ask for separate bids than to do the same work in a lump sum.

Mr. McCAY. They got bids both ways that time, I think. It will be very easy to demonstrate that. I am not positive about that.

The CHAIRMAN. Yes.

Mr. McCAY. But I am positive, if the specifications are drawn as they have been drawn, that that will be the result. Of course a manufacturer can put any price on a cable, and of course he will charge a high price if he knows that he is the only manufacturer that can furnish that cable; but if the bids are wide open to the market the Government will receive a substantial decrease in the price. I do not know that there are any cables going to be laid at all this year, but it has been my experience that when one manufacturer thought that he had the absolute control of the laying of it his price for the cable and for the laying of it would be much higher than if it were open to the market. And I have a letter, and I think I can produce it for

the committee's edification, where a manufacturer wrote me and stated that it was absolutely useless to submit any proposal to the Weather Bureau; that they would award the contract for the gutta-percha cable, as they preferred a gutta-percha cable.

Mr. SAMUEL. Did any of those specifications provide for cable with rubber insulation?

Mr. McCAY. Oh, yes.

Mr. SAMUEL. They did?

Mr. McCAY. Yes, they provide for the rubber cable; but the recommendation of the committee has always been in favor of the gutta-percha cable.

The CHAIRMAN. Do you have any knowledge of any reliable and well-known scientific work that treats of the question of the efficiency of the different kinds of cables that you could give me the name of?

Mr. McCAY. Not right offhand; but I can furnish you that. I think the report of the Chief Signal Officer would show that.

The CHAIRMAN. That, of course, we can reach in another way. I wanted to know whether there had been any scientific investigation on the part of disinterested and scientific parties who have scientific knowledge of the matter.

Mr. McCAY. Yes.

The CHAIRMAN. Discussing the efficiency and value of the different kinds of cable, that you could hand to the committee.

Mr. McCAY. Yes; I think so.

The CHAIRMAN. Will you hand it to the committee?

Mr. McCAY. Yes; I think I can see that you get it.

Mr. SAMUEL. One of the provisions of the bid in my hand provides for a layer of Chatterton's compound.

Mr. McCAY. Yes.

Mr. SAMUEL. Is there any other compound that would be as good as Chatterton's compound?

Mr. McCAY. Yes; I think so.

The CHAIRMAN. Do you know whether that provision was in the other bids?

Mr. McCAY. I am not positive; but I think so.

You see it goes very specifically into the making of cables, and states just what compounds shall be used, and everything of that kind.

The CHAIRMAN. What is Chatterton's compound? Is it an article that is on the market generally?

Mr. McCAY. It is a mixture of gutta-percha.

The CHAIRMAN. Is it on the market generally so that any bidder or contractor can get it without any trouble, just as you would get Portland cement?

Mr. McCAY. I think it is easier made in a gutta-percha factory than in a rubber factory.

The CHAIRMAN. Is it a material that is on public sale?

Mr. McCAY. Yes.

The CHAIRMAN. So that that feature of these specifications does not necessarily confine the contractor to the control of any particular manufacturer?

Mr. McCAY. No, sir.

(Witnesses: McCay, Zappone, Robinson, Moore.)

The CHAIRMAN. Just on that question of Chatterton's compound, in a general way, what is that compound?

Mr. McCAY. That is a compound of rubber and gutta-percha. It comes in sticks about that long [indicating], and it is a well-known compound in use for cables.

The CHAIRMAN. It is familiar to the art?

Mr. McCAY. Yes; it is familiar to the art.

The CHAIRMAN. Is it a patented product?

Mr. McCAY. I believe it was patented, but I am not positive whether the patent has run out on it or not. It was patented.

The CHAIRMAN. It has become a familiar subject of merchandise?

Mr. McCAY. Yes, sir.

The CHAIRMAN. So that that does not confine the contractor to any particular material to the disadvantage of the Government or the disadvantage of the contractor?

Mr. McCAY. No.

The CHAIRMAN. That is what I wanted to get at.

Mr. McCAY. Yes, sir.

Mr. SAMUEL. Under that proviso of the contract it would be no hardship on the bidder?

Mr. McCAY. I think not. Right on this subject, I would like to ask if they have those proposals for the gutta-percha and rubber cables right here before them. Have you those proposals?

Mr. ZAPPONE. I have not. Here are the specifications, and the proposal was submitted thereon. If the proposals were here you could very easily see the difference in price between the rubber and the gutta-percha.

Mr. SAMUEL. This only provides for gutta-percha bidding?

Mr. McCAY. Yes.

Mr. ROBINSON. If you would like to have some of the bids, I have them right here, and we have the comparison between the bids of the Okonite company and the Bishop company on the 35 miles of cable from Charlevoix to Beaver Island. It was this: The Okonite company's bid was \$38,311 and the Bishop company's bid was \$29,800.

Professor MOORE. For gutta-percha?

Mr. ROBINSON. For gutta-percha. Mr. McCay made the remark that there was a vast difference. Now, so far as gutta-percha is concerned, it is the only cable that is used on the Atlantic and on the Pacific, and in all those cables, on account of the high insulating qualities of the gutta-percha, it is used in preference to everything else. Our desire was to get the very best that could be had, and the very best known insulation is gutta-percha. It has stood the test since 1858. The first cable across the Atlantic was laid in 1858, and that cable is in use to-day, and it shows the efficiency of it. Gutta-percha increases in efficiency the longer it is under water, and in cold water particularly.

Mr. McCAY. Mr. Robinson has mentioned Okonite and compared Okonite with the Bishop company's bid. The Okonite is not a rubber insulation. It is a compound. It is not the rubber cable at all. It has not the rubber insulation. That is made by Roebing or the Standard Underground Cable Company. But Okonite cable is a patented article, and of course they wish a higher price than any other cable manufacturer, and it is not fair to compare the price of

the Okonite cable with the gutta-percha cable. But this committee can get at these facts very easily by addressing the Bishop company and getting their opinion as to whether there is any difference in the cost or not, because they manufacture both cables, both the rubber and the gutta-percha. But as they are the only manufacturers of gutta-percha in this country it is very easy to see that if you call for a gutta-percha cable it means the Bishop company's cable.

The CHAIRMAN. Where are they located?

Mr. McCAY. In New York.

The CHAIRMAN. Do you think they would tell the committee what the difference is, if we went to them and asked them?

Mr. McCAY. Yes; I think they would. I think Mr. Reed, the president of the company, would tell you. He is a very honorable and straightforward man. I know him very well, and I think he would tell the committee.

Professor MOORE. May I ask him a question?

The CHAIRMAN. Yes.

Professor MOORE. That is the company that you say gets the majority of the contracts from the Weather Bureau?

Mr. McCAY. Yes.

Professor MOORE. That is the very company that paid this commission to you on the cable to Southeast Farallon?

Mr. McCAY. No, sir; that is not the company that paid me a commission. I purchased it from the company for less than they offered it to the Government for. They took a cash discount off in New York, if I would pay for it and pay the freight and do the work, and so forth.

Mr. SAMUEL. Is there any other provision of the bids that would indicate or tend to show that the Bishop people would be favored?

Mr. McCAY. It starts off with the gutta-percha cable, and in a number of specifications it only calls for the gutta-percha cable.

Mr. SAMUEL. Yes; but I understood that they have bids for gutta-percha and also for rubber.

Mr. McCAY. Yes; here they do, but they only took the gutta-percha, and the whole manufacturing trade has come to the conclusion that it is gutta-percha or nothing with Mr. Robinson, in spite of the experience of every other manufacturer and of all other people everywhere.

Mr. SAMUEL. Then I understand that previous to this year the Government only invited bids on gutta-percha insulation?

Professor MOORE. I think that is not a true statement, Mr. Chairman.

Mr. McCAY. No, sir. This that you have before you there, that of last year, is gutta-percha.

Mr. SAMUEL. How long have they been inviting bids for gutta-percha?

Mr. McCAY. In 1902 they invited bids for rubber and gutta-percha, and each year since they have invited those bids.

Professor MOORE. May I correct him?

The CHAIRMAN. You may ask him a question.

Professor MOORE. You say that is entirely for gutta-percha. I will ask you if this does not read for rubber also there [indicating on specifications]? I think that he will find no specifications that

(Witnesses: McCay, Moore, Zappone, Robinson.)

provide only for gutta-percha, although we are favorable to the gutta-percha and think it is the best.

Mr. McCAY. It starts in that way; the heading is for gutta-percha. You have in the footnotes "of rubber," and so forth; but it just shows the trend of the Department toward gutta-percha.

The CHAIRMAN. Which is the clause?

Mr. McCAY. No. 4. "Bids for furnishing okonite or kerite insulation will be considered."

Professor MOORE. Rubber is in the line above, not as large as the other, but it is a caption line. It is absolutely a free, open competition for everybody that wants to bid.

Mr. McCAY. Yes; it is a free competition for whoever wants to bid—

The CHAIRMAN. Just one moment. Let us look at these specifications. Let us see where we are as we go along, step by step. When was this specification used, and for what?

Mr. ZAPPONE. That was for the cables for the fiscal year 1905. He has specifications for the year 1906.

The CHAIRMAN. This is for 12 statute miles of one-conductor cable, gutta-percha insulation. Second, for 12 statute miles of one-conductor cable, rubber insulation. Now that, of course, travels on all fours. Then there are specifications for two-conductor cables, rubber insulation. And then below we find "Bids for furnishing okonite or kerite insulation will be considered."

Mr. McCAY. Was this all awarded on these specifications of 1905?

Professor MOORE. What bid are you talking about?

Mr. McCAY. This 12 miles under the specifications that the chairman is reading now.

Professor MOORE. I do not comprehend your question.

Mr. McCAY. On these specifications, was there any award made under them?

Mr. ROBINSON. There was an award made under all the specifications.

Mr. McCAY. To whom?

Mr. SAMUEL. The provisions of the bids, aside from the rubber and the gutta-percha were the same—that is, the other provisions—were they not?

The CHAIRMAN. The inquiry that Mr. McCay makes, as I understand it, is directed to the specifications for 1905, from which I have just read, and his inquiry is whether any awards have been made under these specifications.

Mr. ROBINSON. Yes, sir; the award was made to the Bishop Gutta Percha Company for gutta-percha from Charlevoix to Beaver Island.

Mr. McCAY. I would like to ask Professor Moore or Mr. Robinson, either one, a question. Were not the specifications drawn here for a cable to Tatoosh Island, or out there in Oregon?

Mr. ROBINSON. In Oregon?

Mr. McCAY. Yes.

Mr. ROBINSON. There was a specification drawn up, but it was from Fort Canby to Fort Stevens. That is a thousand miles from Tatoosh Island.

Mr. McCAY. Who got that award?

Mr. ROBINSON. The Bishop company got that.

(Witnesses: McCay, Moore, Robinson, Zappone.)

Mr. McCAY. You did not mention that, did you, Professor?

Professor MOORE. Yes.

Mr. ROBINSON. Yes; that is in the report.

Mr. McCAY. What year was that?

Mr. ROBINSON. 1903.

Mr. McCAY. That was 1903 and 1904, and in 1905 they received your award?

Mr. ROBINSON. Yes.

Mr. McCAY. In fact, every year they have received the award since 1903?

Mr. ROBINSON. No; 1904. The Block Island cable was awarded to the Okonite company for 1903.

Mr. McCAY. Out of the four years from 1900 to 1904 and 1905 the Bishop company got three and the Okonite company one; is not that right?

Mr. ROBINSON. Yes; and Brixey one.

Mr. McCAY. No; not the Brixey one. That was the year before.

Professor MOORE. Yes.

Mr. McCAY. In recent years?

Mr. SAMUEL. Out of the five awards the Bishop company received three.

Mr. McCAY. I am through now, unless the committee wants to ask me questions.

Mr. ZAPPONE. I would like to ask Mr. McCay a question.

The CHAIRMAN. Very well.

Mr. ZAPPONE. You say that you have a letter from one of the manufacturers of cable saying that he has been discriminated against, and that you can produce that letter?

Mr. McCAY. Saying that it was absolutely no use to submit a proposal to your Bureau, because he felt that it was a waste of time and money; yes, sir; and I can produce that letter.

Mr. ZAPPONE. Meaning that he had been discriminated against?

Mr. McCAY. Not meaning that he has been discriminated against, but meaning that there was a favored concern in this country that got all your business.

Mr. ZAPPONE. That is your statement.

Professor MOORE. In view of the fact that two out of five did not go to them.

Mr. ZAPPONE. Now, in addition to that I think you said several other manufacturers would be willing to make affidavit that they had been discriminated against.

Mr. McCAY. No, sir.

Mr. ZAPPONE. And that it was of no use to offer bids to furnish cable to the Weather Bureau?

Mr. McCAY. No, sir.

Mr. ZAPPONE. I think that was your statement.

Mr. McCAY. I said I thought I could get affidavits.

Mr. ZAPPONE. Yes; that you thought. Will you get those affidavits and file them with this committee?

Mr. McCAY. Yes; I will.

Mr. ZAPPONE. Now, one more question. I think by your own evidence you are not a manufacturer of cable at all?

Mr. McCAY. No.

(Witnesses: McCay, Zappone.)

MR. ZAPPONE. You simply lay cables?

MR. McCAY. I explained to the chairman that when you specified laying it was necessary for a contractor and not a manufacturer to submit a bid, as the manufacturer preferred to just build the cable and have it accepted at his plant, and then have somebody else lay it, as it is the most dangerous part. Therefore this combining of the proposals into one form, the combining of the furnishing and the laying of the cable, excludes me.

THE CHAIRMAN. I suppose, as a matter of fact of the business, it is a fact that the man who manufactures the cable and proposes to bid a lump sum for laying the cable in a certain locality, before he would make a bid covering the whole work would, either by consultation with yourself or some other man engaged in that branch of the business, ascertain what it was going to cost to lay it?

MR. McCAY. Yes; but the cost of the laying is so small in comparison with the price of the cable that he hesitates very much in putting a \$25,000 cable in the hands of a man who will only handle it. That is the feature that is objectionable to the cable manufacturer.

THE CHAIRMAN. That feature of the transaction, in your judgment, increases the price that the manufacturer under those circumstances makes to the Government?

MR. McCAY. Yes.

THE CHAIRMAN. That is your theory about it?

MR. McCAY. Yes.

THE CHAIRMAN. Of course, there is no practical difficulty, as a matter of fact, in the man who manufactures the cable making a bid for the whole work?

MR. McCAY. No, sir; except, as a rule, those people are not fitted for the laying.

THE CHAIRMAN. Of course, they would depend on the outside contractors for that?

MR. McCAY. Yes; but they hesitate to trust a valuable cable in their hands.

MR. SAMUEL. In your letter of May 16 to Mr. Littlefield I note this language:

We hope if any appropriation for cable is made this year some restriction clause may be put in this bill which will allow any manufacturer to submit a proposal, and compel the Department to accept the lowest bidder.

Are we to infer from that that the lowest bidder did not always receive the contract?

MR. McCAY. Yes, sir.

MR. SAMUEL. I inferred it from the word "compel."

MR. McCAY. Yes; I think so. Therefore I would like to have that put in the bill.

THE CHAIRMAN. I think it is the universal practice of the Department to make their acceptance of a bid dependent not only upon the price, but upon the responsibility of the bidder and the efficiency of the material. I understand that it is the practice of the Department of Agriculture to undertake to be governed in the main by the price, but they do say that there are other elements that enter into the question of whether or not they will accept the lowest bid, because the lowest bid in price may turn out to be the most expensive to the Government on account of the lack of responsibility on the

(Witnesses: Moore, Zappone.)

part of the contractor or the inefficiency of the material. Do I state the attitude of the Department rightly?

PROFESSOR MOORE. Yes, sir.

MR. ZAPPONE. May I make a short statement to enlighten the committee on this point? We are not compelled to accept the lowest bidder. The Department is supposed to subserve the best interests of the Government in making an award, and in nearly all our specifications contractors have the opportunity to submit a bid on any article that they manufacture. The name of the manufacturer given in the specifications is merely given as a means of describing the article that the Government prefers, or rather, I should have said, as a standard of what the Government would like the article to be equal to. Now, in these specifications that we have had under discussion, under the head of "Instructions to bidders," which instructions are over the Secretary's signature, you will notice they read as follows:

2. Bidders are requested to submit samples of the cable they propose to furnish, if practicable. The name and address of the bidder, weight per statute mile, and price should be carefully marked on each sample.

3. Bidders must submit separate bids for furnishing and delivering the cable, and for furnishing, delivering, and laying the cable.

This was done for the purpose of determining which bid would be the most economical for the Government to accept, whether to have the bidder do the entire job, or simply to furnish and deliver the material at some point and then secure a separate bid for laying it. That was one of the points Mr. McCay has touched upon. I merely mention it as it is the one that we have had so much discussion about.

THE CHAIRMAN. This is for 1905?

MR. ZAPPONE. Yes, sir; this is the one we have under discussion, and I want to stick right to it. The fourth paragraph of the instructions reads as follows:

The Department reserves the right to reject any or all bids, to waive defects, and to cancel the contract at any time these instructions are not complied with, or for any other good and sufficient reason.

Now, in general connection with this subject, and in defense of the Department, I want to say that these specifications were gotten out by the Weather Bureau in conformity with law. Advertisements were issued in the newspapers and the matter was given the fullest publicity in every way. The day and the hour were set for the opening of the bids. All bidders were notified to be present; many of them were there; I think, perhaps, Mr. McCay was there; the bids were opened in their presence, by whom? Not by Mr. Robinson, or Professor Moore, or myself, but by a committee or board of awards, which, under the business methods of the Department of Agriculture, is a requirement of the Secretary, and every large bureau—I should say every important bureau—like the Weather Bureau, has its separate board of awards, separate from the main Department, on account of its being removed some distance from the main Department. It has, as stated, a board of awards for the purpose of making awards and considering all bids submitted to them. In this particular case the bids were opened by the chief clerk of that Bureau. I know they were, because it is always done in the same

way—in the presence of the bidders, and then referred to this board of awards for consideration. Did Mr. Robinson have anything to do with that, or any of the gentlemen at the Weather Bureau who have been mentioned here?

The CHAIRMAN. I do not understand that there is any question that you did.

Mr. ZAPPONE. I just wanted to make plain that point. It appears that there is some little shadow on the integrity of some of us.

The CHAIRMAN. I do not understand that there is any such intimation.

Mr. ZAPPONE. These bids were referred to the board of awards. These gentlemen change every year. That is done purposely, so that our employees can not have any collusion with outside people, and these bids were carefully considered by the board; they probably sent for such expert testimony as they desired, or they may have acted on their own knowledge; that I can not say. They have authority under the orders of the Secretary to use their best judgment in making the awards. They did that in this particular case here that we have under discussion, and made the award to the Bishop Gutta-Percha Company; and, Mr. Chairman, we are willing to stand on it. I have not anything further to say.

Mr. McCAY. May I ask one question?

Mr. ZAPPONE. Certainly, sir.

Mr. McCAY. The members of these boards of awards are not practical men; they are the heads of departments? They send for expert testimony?

Mr. ZAPPONE. We have one or two practical men on cables; but, as a rule, they are not found on the technical staff, and may not be members of the board of awards.

Mr. McCAY. Yes; and Mr. Robinson is called in by this board of awards.

Mr. ZAPPONE. I said if the board of awards could make the award on their own judgment they would do so.

Mr. McCAY. Yes.

The CHAIRMAN. I do not understand you to make any intimation that there was anything wrong in this?

Mr. McCAY. No, sir; I do not make any such intimation.

Mr. SAMUEL. In this letter of May 16, it says:

We have certain letters in our possession which show that the specifications are so drawn that it is useless for other cable manufacturers in this country to bid on, and, in fact, the Department paid considerable more money last time for cable than was necessary, and in the past ten years we know they have purchased cable mostly from one manufacturer.

Now, Mr. McCay, may I ask you whether they paid more money than was necessary for the gutta-percha cable?

Mr. McCAY. That is a very hard question for me to say, but I believe I could import gutta-percha cable and give it to the Department for less money than they paid for that. But the truth of the business is that I did not refer to the gutta-percha cable when I said that. I meant rubber cable. We had about determined that the next time any large cable came up for the Weather Bureau we were going to make an arrangement with an English company to ship us the gutta-percha cable here, and we were going to armor it

(Witnesses: McCay, Zappone.)

in one of the cable manufactories, so that if the cable was worth anything, if there was anything involved in it—not 3 or 4 miles, but 25 miles of cable, say—but we had become so thoroughly convinced in our minds that the Department required and would allow no other cable but gutta-percha cable that we had about made up our minds to that effect.

The CHAIRMAN. Your criticism is not of the Bishop Gutta-Percha Company, and it is not upon the business of the Department, meaning that they have preferred that company, but your criticism is that they think that gutta-percha is the best material?

Mr. McCAY. And they have so specified it that there is no other builder in this country that can make it.

The CHAIRMAN. I do not understand that you intimate, either in your letters or in your statement, that there is anything improper on the part of anybody in the Department?

Mr. McCAY. No, sir; I do not.

The CHAIRMAN. You do not agree with their judgment as to the fact that gutta-percha is the best material?

Mr. McCAY. That is the contention that I make.

The CHAIRMAN. And you do not think that the bids should be confined to gutta-percha for that reason?

Mr. McCAY. Yes, sir; that is right.

The CHAIRMAN. There is no suggestion that there has been any improper method used by them in reaching that conclusion. I do not understand that Mr. McCay reflects upon the Department in any way except that he thinks that the Department may have an erroneous idea as to the value of gutta-percha; is that it?

Mr. McCAY. Yes, sir.

The CHAIRMAN. That is simply a business proposition. I do not understand you think there is anything improper.

Mr. ZAPPONE. That is not the way that I sensed it.

Mr. McCAY. I see that. They seem to think that I was implying that there were improper methods in this business.

The CHAIRMAN. It is a pure business proposition.

Mr. McCAY. It is a pure business proposition.

The CHAIRMAN. And it does not involve any impropriety?

Mr. ZAPPONE. I took it from his letter and statements that there was an implication that there was something wrong, and I wanted to bring that out.

Mr. McCAY. I say there is something wrong in the method of drawing the specifications.

The CHAIRMAN. I asked him if he meant anything of that kind.

Mr. ZAPPONE. Yes, thank you.

Mr. SAMUEL. We are not passing judgment on the Department as to whether they prefer gutta-percha to rubber, but we want to know whether the gutta-percha cable, such as is purchased from the Bishop Company, can be purchased for less from some other company that manufactures cable?

Mr. McCAY. Not in this country; no sir.

The CHAIRMAN. To nail that right up: Do you intend, either by your correspondence or your statement, to make any reflection upon the integrity of anybody connected with the Department?

Mr. McCAY. No, sir.

(Witnesses: Zappone, McCay, Moore.)

The CHAIRMAN. That is what I wanted to know. That is what you wanted to know, Mr. Zappone?

Mr. ZAPPONE. That is what I wanted to know.

Mr. McCAY. I wanted it understood that I object very seriously to the specifications as they are.

Mr. SAMUEL. Here is the point that I was trying to bring out. He says in his letter:

In fact, the Department paid considerable more money last time for cable than was necessary.

Mr. McCAY. Yes, sir; if they had purchased rubber cables.

Mr. SAMUEL. That is a modification?

Mr. McCAY. Yes; that is what I meant.

Professor MOORE. You mean that the gutta-percha cable is much more efficient for the place where this went than a rubber cable?

The CHAIRMAN. That is a scientific proposition.

Mr. McCAY. I believe that I can bring evidence before the committee, if I am allowed to, to show that the rubber cable would be equally as efficient, and be just as lasting, and would save the Department a great deal of money. I believe that I can do it.

Professor MOORE. May I interject there?

The CHAIRMAN. Yes.

Professor MOORE. Right on that point alone. Our object is to get for the least money the cable that will be most efficient. We find that gutta-percha is by far the best insulation that we can get, and out of the five cables that we have put down three of them are of gutta-percha and two of some other kind of insulation.

The CHAIRMAN. You are willing to be convinced on this proposition?

Professor MOORE. Certainly; and if time demonstrates that cheaper cable will answer our purpose we certainly will take the cheaper cable. We do not believe to-day that it is as economical in the end as a higher-priced cable.

One word more. In our specifications here Mr. McCay says that we simply provide for the materials that shall go into our cables, without providing for their efficiency. I call your attention to the fact that we do require efficiency. In the very opening we determine what the efficiency shall be. We do not want even a gutta-percha cable that has got just a little gutta-percha on it, and is not properly insulated, and we draw those specifications so that it will be a cable that is perfectly insulated, and then we ask for bids on all other kinds of cable, and we say that bids for okonite and kerite will be received. We want to be in a receptive state of mind on this whole proposition, but our main object is to get the best cable we can get, and if the highest-priced cable would be the most economical in the end we certainly should give the award to the highest-priced cable and put it down, and certainly we have had no idea of shutting out anything that will make the bidding open and free.

The CHAIRMAN. Mr. McCay simply raises this scientific and business question, that the Department in reaching the conclusion that the gutta-percha cable is the best and most economical, if the most expensive in the first instance, has not reached a proper conclusion. We will hear all of you on that proposition. He says that he will

(Witnesses: McCay, Moore, Robinson, Zappone.)

produce before the committee men who are competent to sustain his side of that proposition. Of course if it is true that the Department can get along with a less expensive cable we would like to see the Department purchase a less expensive cable, and if it is not true we want to indorse the action of the Department in regard to the cable they are now buying.

Mr. McCAY. You have got down a rubber cable from Key West to Sand Key. Has that given you satisfaction?

Professor MOORE. I will ask Mr. Robinson to answer that.

Mr. ROBINSON. In regard to that, I would say that the water between Sand Key and Key West is shallow. It is, leading right up to the shore at Key West, so shallow that at times it becomes very warm. Gutta-percha in that water would not answer the purpose there, for the reason that it is soluble in hot water, and it would not stand 125 or 126 degrees of heat Fahrenheit, like rubber does, and for that reason we took rubber for that cable from Sand Key to Key West.

In the next place, we took the rubber cable from Manteo to Nags Head for the same reason. The water there for quite a distance is only about a foot deep, and the cable had to go across there, and that water is stagnant and very warm, and if we had put a gutta-percha cable in there it would have dropped away from the wire, and the result would have been that in a short time it would have leaked. That is the reason that we have done that.

Mr. McCAY. You have not answered my question. I asked you if the cable had given any trouble, from Sand Key to Key West?

Mr. ROBINSON. The only trouble that we have had is that the connection—

Mr. McCAY. I mean with the cable itself?

Mr. ROBINSON. The connection at Sand Key has given us trouble, and we have had to repair it once or twice.

Mr. McCAY. In that way the cable has given you no trouble at all?

Mr. ROBINSON. No difficulty.

Mr. SAMUEL. Can you tell us how long a rubber cable has been in existence, or laid?

Mr. McCAY. I think the Western Union company has had one in New York Harbor for twenty-five years. I can get those facts.

Mr. SAMUEL. Do you know whether it requires more repairing than a gutta-percha cable in that time?

Mr. McCAY. No, sir; it is much easier to repair than a gutta-percha cable.

Mr. SAMUEL. Do you know whether it has required more repair than a gutta-percha cable?

Mr. McCAY. No, sir; it has not been touched, to my knowledge, in that time.

Mr. ZAPPONE. Mr. Chairman, if we require any more information in regard to the relative merits of cables I would like to ask that we send for a cable manufacturer. Mr. McCay is not that. He is simply laying cables, and his whole contention here in this matter is in the interest of some people who have not put in any protest whatever.

The CHAIRMAN. The committee would be glad to have some information from somebody who has knowledge of the subject. We do not want to spend our time in hearing from people who have no per-

(Witnesses: McCay, Moore, Zappone.)

sonal knowledge on this subject. We do not want to cumber the record in that way.

Mr. McCAY. I suppose that Mr. Reber, of the Signal Bureau, would do.

Professor MOORE. He is a splendid man.

The CHAIRMAN. If Professor Moore and Mr. Zappone and Mr. McCay are willing to agree upon some one man that will satisfy the committee. Whether we will want somebody else or not will depend on what we conclude about it.

Mr. McCAY. I suggest Mr. Reber.

The CHAIRMAN. What is he?

Mr. McCAY. He is a major in the Signal Corps.

The CHAIRMAN. If he would satisfy you two people, very well.

Mr. McCAY. I suggested him because I thought he was in Washington. There are other people in the Signal Corps who would be agreeable.

The CHAIRMAN. If Major Reber would be agreeable, very well. Would he be agreeable to you, Professor?

Mr. ZAPPONE. My point was not quite that, and I meant no reflection on Mr. McCay in what I said. We have men in the department who have had practical knowledge and experience in the handling and laying of cables, but not in the manufacture of cables. Mr. McCay is not a manufacturer, and I say that we ought to have the testimony of some one who is a manufacturer and can give us expert testimony as to the merits and values of these different cables.

Professor MOORE. Is it important enough to waste all that time on it? I do not see that there is anything brought out yet to make it worth while.

Mr. McCAY. Mr. Brixey, who has already furnished one of the cables, would, I think, appear before the committee. I would like him to come before the committee, or you might write a letter to him. He is a cable manufacturer.

The CHAIRMAN. We do not want to go to the trouble of examining anybody unless they desire to be heard.

Mr. McCAY. There are no cables coming up this year for the Weather Bureau.

The CHAIRMAN. That does not make any difference.

Mr. McCAY. It does make a difference, Mr. Chairman, because they would not want to come down from New York just for the sake of appearing before a committee when there is no immediate probability of any cable being laid.

Professor MOORE. There are ten manufacturers in the country, and it seems to me that if our action had been unsatisfactory to them some manufacturer should be here to complain.

Mr. McCAY. I will do my best.

Professor MOORE. Does not our plan of calling for cable laid instead of unlaidd interfere with your business?

Mr. McCAY. Yes, sir; it does.

Professor MOORE. That is the point you make?

Mr. McCAY. Yes. Will the committee excuse me now?

The CHAIRMAN. Yes.

Mr. McCAY. I want to catch the 1 o'clock train and I must leave very soon in order to do so.

(Witnesses: McCay, Moore, Robinson.)

The CHAIRMAN. When will you produce some of these gentlemen who have knowledge on this subject, from your point of view?

Mr. McCAY. I will get them as soon as possible and will advise you.

The CHAIRMAN. I think if you would get one good man it would be enough.

Mr. McCAY. If I can get Mr. Brixey to come down——

The CHAIRMAN. Is he a manufacturer?

Mr. McCAY. Yes, sir; and he has already furnished a cable for the Weather Bureau.

Professor Moore. Mr. Reed has furnished three of the cables.

Mr. McCAY. I do not think he would be exactly on my side of this controversy.

The CHAIRMAN. Is Mr. Roebling a good man?

Mr. McCAY. Yes; he is an excellent man.

The CHAIRMAN. Where is he?

Mr. McCAY. In New York, I think.

Mr. ROBINSON. Mr. McCay made a remark that I would like to make a statement on before the committee. He said that the Roeblings were in the number that did not care to bid. The Roeblings wrote me a letter like this: "We are not now prepared to lay cables, and consequently will not be able to bid on this, and we regret very much that we are not able to do so." But they claimed that next year they would have their factory in such a condition that they would be able to bid, and said that they would thank us very much to give them an opportunity to bid then. That is in answer to Mr. McCay's statement that putting the laying and the making together shuts out the manufacturer.

Mr. McCAY. I am very much obliged to you, Mr. Chairman.

The CHAIRMAN. You will advise us when you can furnish us this information?

Mr. McCAY. I will do so.

(At this point Mr. McCay left the committee room.)

STATEMENT OF MR. JESSE A. ROBINSON, SUPERINTENDENT OF TELEGRAPH, WEATHER BUREAU, DEPARTMENT OF AGRICULTURE.

Mr. ROBINSON. In reference to these bids, they are opened and drawn up just as Mr. Zappone stated. This is a sample of all the bids that have been drawn up.

The CHAIRMAN. This paper that I hold in my hand is typical of the proposals that you have required submitted for cable?

Mr. ROBINSON. Yes, sir.

The CHAIRMAN. And the proposals that you have made heretofore do not differ from this in any substantial particular?

Mr. ROBINSON. No, sir.

(The document referred to is here inserted in the record in full as follows:)

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY.

INSTRUCTIONS TO BIDDERS—CABLE.

Sealed proposals will be received until noon April 30, 1904, for furnishing, delivering, and laying for the Weather Bureau, U. S. Department of Agricul-

(Witness: Robinson.)

ture, twelve (12) statute miles of one-conductor and three and three-fourths ($3\frac{3}{4}$) statute miles of two-conductor telegraph cable, under the following conditions:

1. The successful bidder will be required to furnish a satisfactory bond, within ten days after being notified of the acceptance of his proposal, for not less than one-half the amount of the bid, which amount will be determined by the award; and said bond shall continue in full force and effect until the conditions thereof shall have been fully complied with. Upon the failure to furnish said bond within the time prescribed the award may be made to the next lowest bidder, without further notice to the delinquent bidder. Blanks for contract and bond will be furnished by the Weather Bureau.

2. Bidders are requested to submit samples of the cable they propose to furnish, if practicable. The name and address of the bidder, weight per statute mile, and price should be carefully marked on each sample.

3. Bidders must submit separate bids for furnishing and delivering the cable and for furnishing, delivering, and laying the cable.

4. The Department reserves the right to reject any or all bids, to waive defects, and to cancel the contract at any time these instructions are not complied with or for any other good and sufficient reason.

5. Proposals must be made out and signed in duplicate, and *anyone signing a proposal as the agent of another or of others, or as an officer of an incorporated company, must file with it legal evidence of his authority so to do, unless this authority is already on file in the Department of Agriculture.*

6. An order will be made on the accepted bidder July 1 next for the exact length of cable required, the appropriation not being available until that date.

7. Envelopes containing proposals should be marked "Proposals for Cable," and addressed to the Secretary of Agriculture, Washington, D. C. Envelopes for this purpose will be furnished by the Weather Bureau.

JAMES WILSON,
Secretary of Agriculture.

SPECIFICATIONS FOR FURNISHING AND DELIVERING, OR FURNISHING, DELIVERING, AND LAYING, TWELVE STATUTE MILES OF ONE-CONDUCTOR TELEGRAPH CABLE AND THREE AND THREE-FOURTHS STATUTE MILES OF TWO-CONDUCTOR TELEGRAPH CABLE OF DOMESTIC MANUFACTURE, INSULATION TO BE OF EITHER GUTTA-PERCHA OR RUBBER, ACCORDING TO THE FOLLOWING SPECIFICATIONS.

I.—Specifications for 12 statute miles of one-conductor cable, gutta-percha insulation.

The conductor to be formed of a strand of seven copper wires, each No. 22 B. & S. gage. Its resistance not to exceed 12 ohms per statute mile at 70° F.

The insulation to consist of three coatings of best gutta-percha, with a layer of Chatterton's compound between each, to a diameter of 0.26 inch. The insulation resistance to be not less than 400 megohms per statute mile after forty-eight hours' submersion at 70° F.

The insulated core to be served with three layers of tarred jute to the proper thickness for receiving the armor.

The served core to be armored with twelve No. 5 B. W. G. best galvanized steel wires, spirally laid, and then covered with two reversed layers of jute well saturated with a tough asphaltum compound. All brazes in armor to be galvanized. The cable to be furnished in one length, in a coil of 12 statute miles.

II.—Specifications for 12 statute miles of one-conductor cable, rubber insulation.

The conductor to be formed of a strand of seven tinned copper wires, each No. 22 B. & S. gage. Its resistance not to exceed 12 ohms per statute mile at 70° F.

The insulation to consist of a first layer of pure rubber, $\frac{1}{8}$ inch thick; then one layer of unvulcanized rubber compound containing 40 per cent of pure Para rubber, $\frac{3}{8}$ inch thick; then two layers of vulcanized rubber compound containing 40 per cent of pure Para rubber to $\frac{3}{8}$ inch diameter. The insulation resistance to be not less than 1,500 megohms per statute mile after forty-eight hours' submersion at 70° F.

(Witness: Robinson.)

The insulated core to be taped with a double-lapped cloth well filled with rubber compound and then served with three layers of tarred jute to the proper thickness for receiving the armor.

The served core to be armored with twelve No. 5 B. W. G. best galvanized steel wires, spirally laid, and then covered with two reversed layers of jute well saturated with a tough asphaltum compound. All brazes in armor to be galvanized. The cable to be furnished in one length, in a coil of 12 statute miles.

III.—Specifications for $3\frac{3}{4}$ statute miles of two-conductor cable, rubber insulation.

Each of the two conductors to be formed of seven tinned No. 22 B. & S. gage copper wires. The resistance of each conductor not to exceed 12 ohms per statute mile at 70° F.

The insulation on each conductor to consist of a first layer of pure rubber, $\frac{1}{8}$ inch thick; then one layer of unvulcanized rubber compound containing 40 per cent of pure Para rubber, $\frac{1}{32}$ inch thick; then two layers of vulcanized rubber compound containing 40 per cent of pure Para rubber to $\frac{5}{32}$ inch diameter. The insulation resistance of each conductor to be not less than 1,500 megohms per statute mile after forty-eight hours' submersion at 70° F.

The insulated cores to be taped with a double-lapped cloth well filled with rubber compound and then served with three layers of tarred jute to the proper thickness for receiving the armor, which is to be composed of eighteen No. 8 B. W. G. best galvanized steel wires, spirally laid, and then covered with two reversed layers of jute well saturated with a tough asphaltum compound. All brazes in armor to be galvanized.

The cable to be furnished in one length, in a coil of $3\frac{3}{4}$ statute miles.

IV.—Bids for furnishing okonite or kerite insulation will be considered.

No. of item.	Description of article and character of service.	Price.
1	For furnishing and delivering at Flavel, Oreg., 12 statute miles of one-conductor gutta-percha cable, in accordance with specifications herewith, per statute mile.	.....
2	For furnishing and delivering at Flavel, Oreg., 12 statute miles of one-conductor rubber cable, in accordance with specifications herewith, per statute mile.	.....
3	For furnishing, delivering, and laying 12 statute miles of gutta-percha cable between Flavel, Oreg., and Fort Canby, Wash., the exact landing points to be designated at the proper time, price for cable and job complete.	.....
4	For furnishing, delivering, and laying 12 statute miles of rubber cable between Flavel, Oreg., and Fort Canby, Wash., the exact landing points to be designated at the proper time, price for cable and job complete.	.....
5	For furnishing and delivering at Manteo, Roanoke Island, N. C., $3\frac{3}{4}$ statute miles of two-conductor rubber cable, in accordance with specifications herewith, per statute mile.	.....
6	For furnishing, delivering, and laying $3\frac{3}{4}$ statute miles of rubber cable between Nags Head and Manteo, Roanoke Island, N. C., the exact landing points to be designated at the proper time, price for cable and job complete.	.....
NOTE.—The successful bidder for furnishing, delivering, and laying the cable must understand that he is to supply the vessel and all appliances and labor, bear all risks and expenses, and permit one or more representatives of the Chief of the Weather Bureau to be on the vessel to see that the work is properly done. The successful bidder will also be required to furnish cable boxes and lightning arresters for each cable end, connect up the ends ready for use, and bury the cable in a suitable ditch from low-water mark to the cable poles. Any surplus cable remaining, after covering the distance between Flavel, Oreg., and Fort Canby, Wash., and Manteo and Nags Head, N. C., must be stored at the most suitable point near the landings, without additional expense, on a reel that will hold not less than $\frac{1}{4}$ of a mile.		

The undersigned hereby agree to furnish the Weather Bureau, U. S. Department of Agriculture, in accordance with the printed specifications and instructions to bidders hereto attached, the articles above enumerated at the prices stated; also agree to perform the services above enumerated at the prices stated, and submit this bid, subject to the foregoing conditions, and agree that these conditions and this bid shall constitute a part of the contract if any award is made hereon.

The undersigned also agree to furnish and deliver the above-mentioned cable at Flavel, Oreg., and Manteo, N. C., within — and — days, respectively, after receipt of order.

(Witness: Robinson.)

The accepted bidder also agrees to lay the cable on the first favorable day after its arrival at the points above named.

(Proposals must be made out and signed in duplicate.)

(Signature) _____.

(Place of business) _____.

(Post-office) _____.

(County) _____.

(State, Territory, or district) _____.

(Date) _____, _____.

Accepted, _____, 1904.

Secretary of Agriculture.

Mr. ROBINSON. As regards the specifications, Professor Moore answered the questions as to the specifications, and their conditions describe the insulating qualities of the cable.

The CHAIRMAN. Before we reach that, inasmuch as this relates to the form of proposal, is there any substantial objection, so far as the administration of the Department is concerned, to preparing your proposals so as to get in each instance bids for the lump sum—the completed work—and at the same time for the furnishing of the material and the laying of the cable as separate items? Would it embarrass the Department in any way to issue their proposals for the lump sum and for the separate items, separating the contract?

Mr. ROBINSON. Here is the usual form.

The CHAIRMAN. No; but the question I asked is, Would it embarrass your Department in any way if you submitted your proposals in two ways; first, one based on the lump-sum proposition, the complete contract, cable furnished and laid; second, one segregating the work, so that the material could be bid for in one bid and the laying in another? Would that in any way embarrass the administration of the Department?

Mr. ROBINSON. That would not embarrass the administration of the Department except in this, that you can get cheaper bids by having it done in the lump sum. For instance, we have that condition right here. It reads like this:

for furnishing and delivering, so much per statute mile.

And then we have another paragraph where it says, "For furnishing, delivering, and laying." Now, we get bids separately in that way. Then we have in the other contract a separate bid for the laying of the cable.

In regard to the question of economy, on the cable that was laid from Manteo to Nags Head we got the contract lower by having the bids all together. The Bishop company got the contract on account of their bid for laying the cable being lower than what the other company's bid was, and when you took the two together—that is, furnishing the cable and laying—it made the contract lower; somewhere in the neighborhood of \$75 or \$80.

The CHAIRMAN. Does not that shut out the middleman—such as Mr. McCay?

Mr. ROBINSON. Yes, sir.

The CHAIRMAN. What is the object in shutting out the middleman if the Government saves money?

(Witnesses: Robinson, Moore, Zappone.)

Mr. ROBINSON. The Government does not. We lose money.

The CHAIRMAN. What is the object in doing it?

Mr. ROBINSON. We have tried it, and we could not get any competition.

Mr. SAMUEL. Could you tell us whether the bid which Mr. McCay had, in which he purchased the cable from the Bishop company and laid it, was cheaper than that of the Bishop people?

Mr. ROBINSON. Yes, sir; yes, sir. That is why I based the remark on the question of economy in purchasing that way.

The CHAIRMAN. In one instance you have your bids in a lump sum; and in fact, according to these instructions, they would be either.

Mr. ROBINSON. Yes, sir.

The CHAIRMAN. Therefore calling for a lump sum and the bid calling for the furnishing are independent propositions, and you do not call for the laying as an independent proposition, according to these instructions you have just read.

Professor MOORE. Yes, we do.

Mr. ROBINSON. We do in the 1903 bids.

The CHAIRMAN. What objection is there to calling for bids for the lump sum, and, second, calling for the furnishing of the material, and what objection is there to calling at the same time for a bid for the laying?

Mr. ROBINSON. I do not know that there would be any particular objection to that. I see what you are driving at. We could see, then, right before us which bid was the lowest.

The CHAIRMAN. Segregated.

Mr. ROBINSON. Segregated or taken in the lump sum.

The CHAIRMAN. Then I see no objection from the standpoint of the Department to having your proposals issued in that way, do you?

Mr. ROBINSON. No; I do not know that there is any objection to it at all, any further than that when we tried it before we found that we paid more for the laying of the cable because there was only the one bidder who came in, and whatever he bid we had to take.

The CHAIRMAN. You are not obliged to take that. If you have the lump sum, you can take the lump sum and leave out the bid for the laying?

Mr. ROBINSON. Yes.

The CHAIRMAN. If you ask for your bids on three different bases—first, a bid for furnishing and laying as one item; second, a bid for furnishing of the material and the laying of it on the spot, and third, a proposal for the laying of the material after it has been delivered on the spot—there are the three propositions, and if you get bids under those three proposals you can very easily tell whether your lump sum bid for the whole work, furnishing and laying as one item, is less than the two bids would be for the material furnished and delivered and for the laying of the material after delivery. Is that plain?

Mr. ROBINSON. Yes; that is plain.

The CHAIRMAN. What objection is there to pursuing that course?

Mr. ZAPPONE. I think that is an excellent suggestion.

The CHAIRMAN. What objection is there?

Mr. ROBINSON. None at all.

The CHAIRMAN. That can be done hereafter, then?

(Witnesses: Robinson, Moore.)

Mr. ROBINSON. That can be done hereafter. That is what this man is contending for.

The CHAIRMAN. You see no objection to it, and it can be done?

Mr. ROBINSON. I see no objection except that when we asked for these three cables we got no competition on the laying.

Professor MOORE. What is new to me is that this man admitted in his testimony that on that big cable to Farallone Island he got a big commission; that they sold to him for less than they offered it to the Government for. He not only got his pay from us for laying that cable, and for the work of putting it down, but he admitted that the Bishop company turned around and gave him what was equivalent to a commission; that is, they sold him that cable cheaper than they sold it to us.

The CHAIRMAN. How was he able to purchase the cable that the Bishop Company had already sold to you?

Professor MOORE. That is the point. That is the point, right there. It shows that there is the crux of this whole matter. It seems that there was no question at all—

The CHAIRMAN. But you are all right if the Department gets the bids both ways, if you get your lump-sum bid and your separate bids.

Professor MOORE. We would just as soon do it that way in the future. But when we separate this thing, as you would like to have it done, the trouble is that we get no competition on laying; but as it appears, one of our bidders sells to a man who is not a manufacturer at all, but has a contract for laying, at a less figure than they sold it to us for, and he got a good commission on that cable.

The CHAIRMAN. Is it possible that in opening the bids for the laying of the cables they will all recognize this concern in the laying of the cables?

Professor MOORE. Is that possible? I do not know.

The CHAIRMAN. That will not be made any more possible by having bids for that purpose?

Professor MOORE. I can not see the connection.

Mr. SAMUEL. Would not that imply that the Government was paying Bishop more than they were paying some one else—more than Bishop was getting from some one else for the same cable?

Professor MOORE. I do not know as to that.

Mr. ROBINSON. The price is reasonable.

Professor MOORE. Mr. Robinson has just testified that when the two were separated the bids for laying and furnishing combined were less than the two separately.

The CHAIRMAN. Does not Mr. McCay's statement amount practically to this. Take this particular instance: Here was a cable to be laid in a certain locality, and the Bishop Gutta-Percha Company bid for that and got the contract for delivering it on the spot, and McCay got the contract to lay it, and McCay practically took an assignment of the contract of the Bishop Gutta-Percha Company with the Government, and, instead of their waiting for their pay from the Government until the work was done, he paid them cash down in New York, and stood in their shoes, and they were willing to give him whatever commission they gave him in consideration that he advance the money before the cable left New York. Is not that practically what the statement amounted to? How much that com-

(Witnesses: Moore, Robinson.)

mission was I do not know; but, of course, they could not sell the cable to him that they had already sold to the Government, and if that transaction took place that is exactly how it occurred.

Professor MOORE. Yes. I would like to make this plain, that we did not continue our policy of getting separate bids for the laying and furnishing of the cable because we had such difficulty in getting any competition on the laying, and we wanted to compel the manufacturer to assume the burden and the responsibility of laying the cable and thus avoid the trouble and the strife incident to our having the two things contracted for separately. That was our motive. On the other hand, if the committee wants us to separate these bids, there is no reason why we could not do it.

Mr. SAMUEL. Did you ever have any bids from anybody but the Bishop company for the gutta-percha cable?

Mr. ROBINSON. No, sir; we had bids from the Siemens company, of London, England, previous to the passage of the McKinley bill, but we have not been permitted to purchase anything abroad since that act became a law.

The CHAIRMAN. You have not been permitted to purchase on account of the duty?

Mr. ROBINSON. No. There is a paragraph in the law that says that such material purchased for the use of the Government shall be of domestic manufacture.

The CHAIRMAN. That confines you, of course, to the purchase of this cable in this country.

Mr. SAMUEL. Would that prevent you from getting your gutta-percha cable from abroad?

Mr. ROBINSON. Yes. We used to get it there, and it drove our manufacturers here out of the business. Our manufacturers here were protected by inserting that provision that all Government goods should be of domestic manufacture.

The CHAIRMAN. Are there any other cables in the locality of the cables that you have laid that could be used by the Government for Government purposes?

Mr. ROBINSON. No, sir.

The CHAIRMAN. So that wherever you have laid a cable you have been obliged to lay it as an independent enterprise for the service of your Bureau?

Mr. ROBINSON. Yes.

The CHAIRMAN. Now, I would like to have you tell the committee what you know about this matter of the relative efficiency of rubber and gutta-percha, or any other substance that is used for the construction of electric cables.

Mr. ROBINSON. There are several different compounds—gutta-percha, kerite, okonite, and rubber.

The CHAIRMAN. How long has the Government itself had experience in connection with gutta-percha?

Mr. ROBINSON. The Government has had experience over forty years. I think it was about thirty-five years ago we laid a cable across what we call New Inlet, in North Carolina, and that cable is as good to-day as when it was put down.

The CHAIRMAN. That is gutta-percha?

(Witness: Robinson.)

Mr. ROBINSON. Yes, sir; that was manufactured by what was then called the "Bishop Company." It was controlled by a man named Marks at that time; it has changed hands since then. That is irrelevant.

Then, again, all the Atlantic cables are made of gutta-percha, and it is stated by Clark, and the best authorities will state, that gutta-percha will increase in efficiency with age, whereas rubber will deteriorate.

The CHAIRMAN. Who is Clark?

Mr. ROBINSON. He is an authority. I have his book on my desk.

The CHAIRMAN. What is his first name?

Mr. ROBINSON. I think it is Latimer.

The CHAIRMAN. What is the difference in the rubber cables?

Mr. ROBINSON. They do not last as long, and the insulating qualities are not so good as the gutta-percha.

Mr. SAMUEL. What is the average life of a rubber cable?

Mr. ROBINSON. So far as we know, the rubber has not been used more than about fifteen or twenty years, and I do not know of any cables, from my own practical knowledge, that have stood the test that long.

Mr. SAMUEL. You heard Mr. McCay's statement in regard to a rubber cable lasting twenty-five years?

Mr. ROBINSON. Yes, sir. I took up the cable laid by one of these people from Block Island to Narragansett Pier, that had been down four years. It was in such a condition of decay that when we arrived off Point Judith it all came apart. We grappled it eight times, but it was so weak we could not raise it to the surface of the water. That was a rubber cable, with a very poor quality of armor. The quality of the steel that was used in the manufacture was very poor. This cable was laid during the Spanish war by the Signal Corps, and was insulated with rubber, and was one of the kind of cables that Mr. McCay wants to tell the committee is as good as the cables we are putting down. That cable, at the expiration of two years, broke, and kept breaking, and we went to a great deal of trouble to repair it, and ultimately we had to abandon the whole thing as worthless. Then we put down gutta-percha cable.

The CHAIRMAN. Do you know of any instance where the gutta-percha cable has failed to discharge its duty?

Mr. ROBINSON. No, sir; I do not.

The CHAIRMAN. And has become inefficient?

Mr. ROBINSON. No, sir; not unless from some violent accident, a vessel running onto it or an anchor tearing it.

The CHAIRMAN. In your experience, there has never been any deterioration in quality?

Mr. ROBINSON. I have never known a gutta-percha cable to deteriorate.

The CHAIRMAN. Your experience has been that the gutta-percha does not deteriorate, but that the rubber does deteriorate very rapidly?

Mr. ROBINSON. I would not say rapidly. It deteriorates——

The CHAIRMAN. Relatively speaking, I mean?

Mr. ROBINSON. Yes, sir.

The CHAIRMAN. What is the difference in cost of the two cables?

Mr. ROBINSON. For instance, you take a gutta-percha cable 35 miles long, I can give that better than anything else, and a rubber cable of that length, and the difference would be about \$3,000.

The CHAIRMAN. What is the difference in cost?

Mr. ROBINSON. I could not tell you exactly that, because in almost every one of these cases the conditions are different. There comes a difference in regard to the laying and in the hire of boats, and appliances of different kinds.

The CHAIRMAN. Take the cable itself as a piece of merchandise?

Mr. ROBINSON. Yes.

The CHAIRMAN. And on sale in the market. Suppose they are on sale. What is the difference in cost of the two kinds of cable as articles of merchandise, and what is the percentage of difference, if any?

Mr. ROBINSON. As I read you a while ago, here was a rubber or okonite cable offered for \$38,000 in a lump sum, while we got the gutta-percha cable laid at Beaver Island for \$28,000.

The CHAIRMAN. That was okonite cable?

Mr. ROBINSON. Yes.

The CHAIRMAN. Is that patented?

Mr. ROBINSON. Yes, sir.

The CHAIRMAN. They have a monopoly, and fix the price to suit themselves?

Mr. ROBINSON. Yes.

The CHAIRMAN. Take a rubber cable and an ordinary gutta-percha cable as to which there are no patents and as to which it may be said that they are both articles of merchandise on sale in the market. Have you any information as to what the difference in cost is, if any?

Mr. ROBINSON. There would not be a difference of \$50 a mile.

The CHAIRMAN. What per cent is that? Is it 1 per cent or 10 per cent or 25 per cent?

Mr. ROBINSON. I suppose you could say 10 per cent.

The CHAIRMAN. Then, so far as your knowledge goes, there would be a difference in the cost of these two cables as articles of merchandise of 10 per cent?

Mr. ROBINSON. Yes.

The CHAIRMAN. Which kind of cable is used to the largest extent by these electrical companies, telegraph or telephone companies, that have occasion to use cable of that sort?

Mr. ROBINSON. There are so many different ones now. I would say perhaps the telephone company, since that has come into the field, uses the largest number of cables. The cables used by the telephone companies are mostly insulated with paper saturated in paraffine. They consider that the highest grade of insulation for telephonic purposes.

The CHAIRMAN. Is that less expensive than gutta-percha?

Mr. ROBINSON. I think it is. I am not familiar enough with that to say. I do not know that it is less expensive. I presume it is more expensive when you come to consider the lead covering.

Mr. SAMUEL. Is there any difference in the cost of the laying of these different cables?

Mr. ROBINSON. There is a difference; according to the locality.

Mr. SAMUEL. I mean in the same locality, as to the laying?

Mr. ROBINSON. None whatever. One is as easy laid as the other.

The CHAIRMAN. Have you any such knowledge of the subject as would enable you to state approximately the percentage of gutta-percha used, as compared with rubber cable?

Mr. ROBINSON. If you take them throughout the world?

The CHAIRMAN. In this country.

Mr. ROBINSON. In this country, I suppose about 25 per cent of the cables in use, where high-insulation qualities are required, are of gutta-percha, and possibly 75 per cent are divided up between paper, okonite, kerite, and rubber.

The CHAIRMAN. Yes.

Mr. ROBINSON. In the electric lighting of Gedney Island channel, the cables are all insulated with gutta-percha. They require the highest grade of insulation there, and they have tried everything else. I am told the Engineer Corps of the Army prefer gutta-percha to everything else for that purpose.

The CHAIRMAN. Use what?

Mr. ROBINSON. They use gutta-percha.

The CHAIRMAN. Why is that, or do you not know?

Mr. ROBINSON. They use it because it is better.

The CHAIRMAN. Better for their purposes?

Mr. ROBINSON. Yes; better for their purposes. They use the electric lights to aid navigation in the Gedney Island channel. They have a power house close to Sandy Hook, and use submarine cables to light the channel buoys with.

The CHAIRMAN. It is better how? You mean it transmits the electricity better?

Mr. ROBINSON. Yes, sir; it transmits the electricity better, and there is less liability of its getting out of order, and the insulation is higher than that of any other known compound.

Professor MOORE. You mean the insulation is better, and therefore the conductivity of the cable is higher.

Mr. ROBINSON. Yes; the conductivity of the cable is higher.

The CHAIRMAN. It transmits the current better?

Professor MOORE. Yes, sir.

The CHAIRMAN. Now, the Army finds that rubber cable is the more efficient, as I understand you?

Mr. ROBINSON. It is only since the Signal Corps laid the cables in Alaska that they have used the rubber cables, and all through the Philippines. In the warm waters of the tropical regions rubber insulation is preferable. The Weather Bureau uses rubber-insulated cables in the tropical regions, but in northern latitudes prefers gutta-percha.

The CHAIRMAN. I understand that they use it in New York.

Mr. ROBINSON. The Western Union use kerite instead of the rubber cable. Their large cable crossing the North River is made of kerite.

Professor MOORE. May I interject there? It was near New York, from Block Island over to the mainland, that we found this worthless cable, which had only been down a few years, made of rubber,

and it was turned over to our control, and we had to abandon it and get an appropriation from Congress to replace it with gutta-percha to keep open communication.

The CHAIRMAN. Is it correct that this Bishop Manufacturing Company is the only company that manufactures gutta-percha cable?

Mr. ROBINSON. Yes, sir. They manufacture rubber, too. They manufacture both kinds.

The CHAIRMAN. If the gutta-percha cable is the most effective and the most durable, and the price is only sufficiently correspondingly higher to take care of those elements, why is it not more generally manufactured and used?

Mr. ROBINSON. Anything that these people can palm off of inferior qualities they will do it; and I might say that it is only in recent years that the people have come to understand anything about the science of electricity. In former years the telephone company started in first with rubber. That did not suit them. Then they took up the gutta-percha, and afterwards they discovered that they could get better results from the paper insulation.

Mr. SAMUEL. What is the Atlantic cable?

Mr. ROBINSON. It is gutta-percha.

Mr. SAMUEL. Are all the great ocean cables made of gutta-percha?

Mr. ROBINSON. Yes, sir; all of them are made of gutta-percha. They have not attempted to build them of anything else, and I do not think they would attempt it with anything else.

The CHAIRMAN. That is the original substance that was used for that purpose?

Mr. ROBINSON. Yes, sir.

Mr. SAMUEL. As regards efficiency, you could use either rubber or gutta-percha?

Mr. ROBINSON. We would not get the efficiency from the rubber.

Mr. SAMUEL. I mean, so far as the work is concerned?

Mr. ROBINSON. Yes, sir; there might be some short cables made of rubber.

The CHAIRMAN. Would not the Signal Corps get more efficient service from the gutta-percha than from the rubber, if your view of the quality is correct?

Mr. ROBINSON. I think they would. Take the cold waters of Alaska; they would get better results from the gutta-percha than from the rubber cable manufactured by the Safety Cable Company.

Mr. SAMUEL. Does the Weather Bureau require any greater efficiency that the War Department?

Mr. ROBINSON. No, sir; we do not require it; but we have a higher efficiency, for the reason that we use gutta-percha.

The CHAIRMAN. That may not be better for the transmission of electricity. If the purpose is the transmission of electricity, the desire is to get it transmitted with the least resistance and the least weight?

Mr. ROBINSON. Yes.

The CHAIRMAN. And then the question comes, What kind of cable will produce most efficiently those results?

Mr. ROBINSON. Yes; and be the most lasting.

The CHAIRMAN. And the judgment of your Department is that gutta-percha will do that?

(Witnesses: Robinson, Zappone.)

Mr. ROBINSON. Yes.

The CHAIRMAN. And so far as the use is concerned, the apparent rule is that the rubber cable will do it?

Mr. ROBINSON. No.

Professor MOORE. We do not confine ourselves entirely to the gutta-percha. We find that is the best insulation. But in warm water we have put down rubber cable, believing that it might answer. We think all of the Departments are, to some degree, experimenting, but that up to date the best thought is that the gutta-percha cable is the most valuable and the most enduring. But we would be adverse to taking something else or experimenting with anything else.

Mr. ROBINSON. I do not think any manufacturing electrician would say that gutta-percha is not the best insulation.

The CHAIRMAN. Do you think of anything more that you want to suggest in relation to that? This whole question, so far as this controversy as to the cable is concerned, is simply in regard to the method in which the proposals had better, as a matter of economy, be submitted; and next is the question as to the quality of the cable, and if the Department could use a cheaper cable with equally good results. Upon that do you want to ask anything more, Mr. Zappone?

Mr. ZAPPONE. No, sir; unless I can ask a question which you might not think relevant, but as to which you could decide.

The CHAIRMAN. Go ahead and put your question.

Mr. ZAPPONE. I would like to ask if the McCay Manufacturing Company—I believe that is the correct title of the company—is the only company in this country that can lay a cable?

Mr. ROBINSON. No; the Bishop Company are now equipped to do that kind of work.

Mr. ZAPPONE. I refer to the back years in which these cables were purchased.

Mr. ROBINSON. They were the only company that could do it at that time.

Mr. ZAPPONE. They were the only firm then?

Mr. ROBINSON. Yes.

Mr. ZAPPONE. And even if bids had been secured by the Weather Bureau for the work done as a job, or for a lump sum, as we have formerly expressed it, the firm getting the award would still have had to go to the McCay Company to have them lay the cable?

Mr. ROBINSON. Yes.

Mr. ZAPPONE. That is where, I think, we made a mistake in our testimony a short time back. When we purchased the cable from the Bishop Company, I think they had the contract not only to furnish the cable, but to lay it.

Mr. ROBINSON. No, sir; they had the contract to deliver it at San Francisco.

Mr. ZAPPONE. Then I am incorrect in that.

The CHAIRMAN. That will be all, Mr. Robinson; thank you.

JANUARY 12, 1907.

(Part of testimony given on above date before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF MAJ. EDGAR RUSSEL, SIGNAL CORPS, U. S. ARMY.

(The witness was sworn by the chairman.)

The CHAIRMAN. Now, Major, the question has arisen as to the durability and value and cost of different kinds of submarine cables, especially the cost of gutta-percha and rubber, and the positions of other kinds of insulation of that character, and we wish to get what information we can as to that question. Will you be kind enough, Major, first to state what your experience has been and what your opportunities have been to acquire information upon that subject, and then give us your view as to the relative value and qualities of reliability and efficiency of the various kinds of submarine cable?

Major RUSSEL. I am on duty with the Chief Signal Officer of the Army, and I have been especially charged with the preparation of specifications and the inspection and also the actual operations of laying submarine cables in many instances in the Alaskan waters and in the Philippines in the past seven years. All of the cables which we have to-day have been made with the rubber insulation. The reason for selecting that material was at first on account of the experience which commercial companies had had with it, which led the Chief Signal Officer to believe that it would be particularly suitable for our purposes as regards durability and economy. The first cables were made and laid in Philippine waters. They gave satisfaction, and more cable of the same kind was purchased and was laid in the Philippines; and since 1903 large quantities of this kind of cable were purchased and laid in Alaskan waters, from Seattle northward to Alaska points—Sitka, Valdez, Juneau, Skagway, and Ketchikan.

The CHAIRMAN. You had warm water in the Philippines?

Major RUSSEL. Yes.

The CHAIRMAN. And cold water in Alaska?

Major RUSSEL. Yes. And the cables have been very satisfactory and have worked almost uninterruptedly as far as any intrinsic qualities are concerned. Of course any cable is subject to interruption from various mechanical causes or breakages, whatever may be the material from which it is made; but the rubber cables have given satisfaction. My experience with the gutta-percha is very limited. In fact, I have had almost none. I have seen a little of that cable.

The CHAIRMAN. Have you investigated the general subject of cables by way of study?

Major RUSSEL. Yes.

The CHAIRMAN. As a scientific proposition?

Major RUSSEL. Yes; I have studied it quite a great deal.

The CHAIRMAN. And with reference to the respective qualities of the two kinds of insulation?

Major RUSSEL. Yes.

(Witness: Russel.)

The CHAIRMAN. What is the result of your investigation of that subject?

Major RUSSEL. I might say that the foreign cable engineers who have investigated that subject and who have been concerned in the laying of nearly all the great submarine cables of the world are almost unqualifiedly in favor of gutta-percha cable, and their opinions had caused the Chief Signal Officer to investigate the question very thoroughly before he bought any rubber cable. His conclusion was that recent practice justified him in buying rubber cable, principally because a number of large manufacturers in this country were in a position to manufacture it in quantity, and on account of the relatively small cost of the cable at that time.

The CHAIRMAN. That is, the relatively small cost, as compared with the gutta-percha?

Major RUSSEL. Yes; the relatively small cost as compared with gutta-percha at that time.

The CHAIRMAN. What was that proportion?

Major RUSSEL. An almost pure gutta-percha is used in insulating the wires, but a rubber compound is used in case of rubber cable. The relative cost of the gutta-percha and the rubber some years ago was something like \$4 per pound for gutta-percha and \$1 per pound for rubber. Since that time, however, rubber has advanced very gradually with respect to gutta-percha, and the wide disparity no longer exists. They have approached each other in price under present conditions. The cost of the cable is made up of the cost of the copper, of the insulating material, of the jute, and of the steel wire armor. Under present conditions I am unable to say what the cost abroad would be of rubber cable and gutta-percha cable. There are no manufacturers in this country who are in position to make large quantities of gutta-percha cable.

The CHAIRMAN. We have received the impression that there is practically only one company in this country that manufactures gutta-percha cable, and that is the Bishop Gutta-Percha Company.

Major RUSSEL. That is the only one I have heard of.

The CHAIRMAN. That is the only one you know of?

Major RUSSEL. Yes; that can manufacture it.

The CHAIRMAN. Have you made any recent examination of the market to ascertain what would be the difference in the cost of the two?

Major RUSSEL. Not recently. I know that rubber has gone up to about \$1.50 a pound. But we have not been in the market for any small quantities of deep-sea submarine cable for several years. We have always wanted large quantities, which we knew we should be unable to get from any manufacturer in this country, so that we were practically limited by conditions to rubber cable.

The CHAIRMAN. That is, you knew that you were not able to get the gutta-percha cable in the large quantities that you wanted?

Major RUSSEL. No, sir; you could not get it in this country, and with the duty added it is certain gutta-percha cable would cost a great deal more in this country in large quantities.

The CHAIRMAN. Have you any idea what percentage more?

Major RUSSEL. I think it is 35 or 40 per cent.

Mr. FLOOD. Do you know what gutta-percha now costs a pound?

Major RUSSEL. Gutta-percha has cost about \$4 a pound.

Mr. FLOOD. And how much does rubber cost?

Major RUSSEL. About a dollar and a half a pound.

Mr. SAMUEL. What is the difference in the elastic qualities of the two cables?

Major RUSSEL. Vulcanized rubber as used in the manufacture of cable is a tougher and more resistant material than gutta-percha, which is more plastic in its nature and is more subject to deterioration in very warm climates. It would easily melt and ruin the cable. Consequently gutta-percha has to be handled with exceedingly great care as compared with rubber cable.

The CHAIRMAN. How about the cold climates?

Major RUSSEL. In cold climates it would be perfectly good.

The CHAIRMAN. Of course you would—

Major RUSSEL. We would avoid that contingency.

The CHAIRMAN. What is the difference in the durability of the two materials in a cold climate?

Major RUSSEL. I do not think that there would be any.

The CHAIRMAN. It is claimed, I believe, that gutta-percha increases in its insulating qualities by age in a cold climate. Have you any experience or knowledge in relation to that?

Major RUSSEL. All insulating materials, either gutta-percha or rubber, improve in their insulating qualities in cold situations. For instance, immersion in cold water will raise the insulating qualities of either rubber or gutta-percha cable.

The CHAIRMAN. This is simply for the purpose of getting your views. We want to get the views that are entertained by different people in regard to this question. I was just handed this morning a work on electricity and magnetism, by Jenkins, and on page 255 I find the following:

The resistance of gutta-percha also increases very considerably with age, if kept under water. This has not been observed with india rubber. The resistances of some specimens of india rubber tested by Doctor Siemens decreased under pressure.

That would not be in accordance with your observation?

Major RUSSEL. No, sir; I think that gutta-percha might run up higher in proportion between the cold and the hot measurement. But all our cables in Alaska show decided rise in resistance by immersion in cold water, which they maintain and even increase as time goes on. So that the qualities are the same, although there is a difference, possibly, in the degree.

The CHAIRMAN. Which has the highest degree of insulating quality?

Major RUSSEL. That depends upon the percentage in the compound of the rubber.

The CHAIRMAN. That is not dependent, then, necessarily upon the material, but it is dependent upon the manner in which the cable is constructed?

Major RUSSEL. To some extent. The gutta-percha is probably a little higher than the rubber compound. But the amount of insulation which you can get from a rubber cable can be easily controlled to any desirable limit.

(Witness: Russel.)

The CHAIRMAN. Does that necessarily involve an extra quantity of the rubber?

Major RUSSEL. Up to a certain per cent. It is necessary to have the highest quality of rubber in the compound. Below that either in quality or quantity the insulation falls off somewhat.

Mr. SAMUEL. Both the India rubber and the gutta-percha are covered with steel wire?

Major RUSSEL. Yes, sir; both are covered with steel wire. I have some samples here of our own cable. These are rubber cable; I have no gutta-percha.

Mr. SAMUEL. What departments use submarine cables besides the Signal Corps and the Weather Bureau?

Major RUSSEL. The Light-House Service has some cable I believe, and the Treasury Department, it may be, at some of the quarantine stations. I believe they have short cables. The Signal Corps, however, is the only department of the Government which has long deep-sea submarine cables.

The CHAIRMAN. I suppose that involves the use of the best material available?

Major RUSSEL. The very best—rubber especially.

The CHAIRMAN. And how long has the Signal Corps been using these deep-sea submarine cables?

Major RUSSEL. In the Philippines, in 1900, we had a number of short cables laid. These were added to, in this network in the Philippines, no cable being over 175 miles long. But in 1903 we began the Alaskan cable system, and all during 1903 cables up to 400 miles in length were laid. In 1904 the cable system was completed, aggregating 2,400 miles of cable. All of these cables I speak of have a single conductor; no multiple conductor cables.

Mr. SAMUEL. Are they all rubber?

Major RUSSEL. All rubber cables.

The CHAIRMAN. What kind of submarine cables are used commercially, so far as you know—that is, I mean by private parties?

Major RUSSEL. In all the systems laid by the foreign manufacturers, governments, or firms the long deep-sea cables are gutta-percha; but in this country the Postal and the Western Union and many of the telephone companies have submarine cables, nearly all of which are rubber, if not all. I know of no short submarine cables in this country made of gutta-percha.

The CHAIRMAN. Our attention has been called to some cables made of gutta-percha that have been laid for thirty or forty years. Do you know of any cable of rubber insulation that has had anything like that length of test?

Major RUSSEL. I have read of one instance of that kind, where rubber cable has been reported as having been in use a long time. I think it is because the art of making seamless rubber cable is a very recent one that no greater lasting qualities have been reported. I have heard of instances of cables laid by the Western Union in the waters of New York Bay that have been in use for twenty years.

The CHAIRMAN. Made of rubber?

Major RUSSEL. Rubber insulated.

The CHAIRMAN. The committee has received a letter from the

(Witness: Russel.)

Bishop Gutta-Percha Cable Company, which I will read for the purpose of having it go into the record, and so that we may have your comments on it. It is as follows:

BISHOP GUTTA-PERCHA COMPANY,
New York, January 11, 1907.

HON. CHARLES E. LITTLEFIELD, M. C.,
Chairman of Committee on Expenditures
in the Department of Agriculture, Washington, D. C.

DEAR SIR: Replying to your esteemed favor of the 8th instant:

The difference in the cost between a submarine cable insulated with rubber and one insulated with gutta-percha is practically only the difference in the cost of the insulating material, the labor and additional material being practically the same.

At the present time the cost of cleaned gutta-percha and of cleaned rubber are about the same, and the difference of the cost is caused by the method of use.

In insulating with gutta-percha the pure gum, worth about \$1.75 per pound, is applied to the copper conductor.

In case of the rubber cable, it is insulated with a compound which should contain about 40 per cent of rubber, now costing about \$1.65 per pound, compounded with 60 per cent of fine mineral matter, costing not more than 4 cents per pound, making the compound cost, say, 70 cents per pound instead of \$1.75. The rubber compound is heavier and requires more pounds per mile, but at present prices there would be about \$40 per mile difference in the cost on a single conductor cable.

At the time the cable was made for the Farallone Islands gutta-percha cost about the same as at present, but crude rubber cost then but 70 cents per pound, whereas it now costs \$1.25, and the difference in cost between rubber and gutta-percha at that time was about \$60 per mile, or on the 26 miles \$1,560. That cable cost, delivered and laid, \$32,500, besides considerable expense for Government supervision.

Less than 5 per cent would have been saved by buying a good rubber cable.

At the time the bids for the Farallone cable were opened three parties bid besides ourselves. All of them bid on rubber insulation, and only one bid was as low as our bid for gutta-percha.

The low bid was for a cheap grade of rubber known as "Kerite."

The reasons for which we prefer gutta-percha are—

First. On account of its known durability. It has been used for insulating submarine wires and cables for almost sixty years and has never shown deterioration except where exposed to heat or light and air.

We are told that the Atlantic cable, laid in 1858, which parted, has been repaired and is now working.

Many ocean cables have been laid since 1866, and there has never been noticed any deterioration in their insulation, except when caused by mechanical injury.

The English Government, the large English companies and large manufacturers who have made, laid, and maintained all of the great ocean cables and an immense amount of connecting cables, and who for many years have been experimenting with rubber, still use gutta-percha except for shore ends and shallow waters in warm climates.

In this country rubber insulations have been considerably improved in recent years and our telegraph companies are using them largely, but their use is principally in short lengths, crossing rivers, bays, etc., where the ends are liable to exposure from low water, and rubber bears such exposure better than gutta-percha.

Another advantage of gutta-percha is that it is much more easily spliced in case of accident. To make a good gutta-percha splice requires little experience and very simple tools.

To make a good rubber joint requires considerable experience and machinery.

General Allen, of the Signal Service, has used rubber insulated cables quite extensively and is well satisfied, but he has a cable ship supplied with electric welding and electric vulcanizing machinery, and I think his oldest cables are not more than ten years old.

We recommend rubber to the Life Saving Bureau and for crossing bays generally where they are in warm water or subject to exposure, but for deep or cool water think gutta-percha cheaper in the end and more reliable.

(Witness: Russel.)

As to whether we write from a scientific or a practical standpoint you may judge from the articles in the copy of the *India Rubber World*, which I mail you. I think that excepting the personal references you will be interested in the article.

If I have omitted to cover any point satisfactorily, I am always at your service in this matter.

Very truly, yours,

HENRY A. REED,

President Bishop Gutta-Percha Company.

Mr. Reed is president of the company. Now, what suggestion would you make in relation to the position taken by Mr. Reed there?

Major RUSSEL. I think he is substantially correct. He quotes very much later prices on gutta-percha than I had available, and, as I say, the chief reason for the chief signal officer taking up rubber instead of gutta-percha was that no manufacturer in this country seemed in position to manufacture large quantities of gutta-percha cable. Furthermore, the price of gutta-percha has gone down. It was quoted at one time—some years ago—at \$4 a pound in London, but the price has come down, no doubt, on account of the competition of rubber.

The CHAIRMAN. How many concerns are engaged in the manufacture of rubber cables?

Major RUSSEL. There are several large companies in this country that we have bought cable from from time to time. There are the Simplex Company, of Boston; the Safety Insulated Wire and Cable Company, at Bayonne, N. J.; the Bishop Gutta-Percha Company, who also make a rubber cable; the W. R. Brixey Company, Seymour, Conn.; the Okonite Company, New York, and the Stanard Company, Pittsburg; we have bought cable from all those manufacturers.

The CHAIRMAN. The rubber cable seems apparently to be displacing the gutta-percha cable as a commercial proposition. Why is that, if the gutta-percha is more efficient and durable and the price is not out of proportion?

Major RUSSEL. Our experience, which does not match the statements of the cable engineers abroad, is that rubber cable is as durable as gutta-percha. There is no doubt that well-made gutta-percha cable, properly laid, is as durable as any cable in the world; but the experience of the Signal Corps is that rubber cable is going to be its equal.

Mr. SAMUEL. The gutta-percha firms say that the cost of gutta-percha cable is only 5 per cent more than that of rubber; does your experience bear that out?

Major RUSSEL. We have had no experience in recent years on that point. Formerly there was much more disparity in the price than there is now.

The CHAIRMAN. If gutta-percha is the better material and the price is not out of proportion to the increase in the quality, there would not seem to be any good reason why the rubber cable should take its place commercially.

Major RUSSEL. As I say, our experience is that the rubber cable is fully as good; for our purposes it is better, in this way, that the cable can be transported dry, which gutta-percha cable can not. Gutta-percha cable has to be put in tanks and kept immersed in water continually. But rubber cable can be exposed to the air for long periods

(Witnesses: Russel, Robinson, Zappone.)

without very much deterioration. It can be handled very much more roughly; kinked and twisted and abused more than gutta-percha can be, and it seems to be from our experience equally as good for our purposes.

The CHAIRMAN. It produces just as good results?

Major RUSSEL. It produces just as good results.

The CHAIRMAN. Do you want to ask the major anything, Mr. Robinson?

Mr. SAMUEL. Just one question. Is the cost of laying either cable the same?

Major RUSSEL. It is.

Mr. ROBINSON. I would like to make a statement for the benefit of the committee, for the reason that there are so few people in this country who make gutta-percha cable.

The CHAIRMAN. I was going to call you after the Major got through.

Mr. ROBINSON. Very well; I beg your pardon.

The CHAIRMAN. Have you anything to ask the Major, Mr. Zappone?

Mr. ZAPPONE. No; nothing.

The CHAIRMAN. Is there any further statement you would like to make that would throw any light on the subject?

Major RUSSEL. I do not think there is anything more. I think all the points were in your questions.

The CHAIRMAN. I think that covers the ground. Have you anything further, Mr. Flood?

Mr. FLOOD. No, sir.

The CHAIRMAN. We are very greatly obliged to you, Major. (Major Russel here left the committee room.)

ADDITIONAL STATEMENT OF MR. JESSE A. ROBINSON, SUPERINTENDENT OF TELEGRAPH, WEATHER BUREAU, DEPARTMENT OF AGRICULTURE.

Mr. ROBINSON. The reason that so few companies manufacture gutta-percha cable is due to the fact that the free entry of the cables here years ago permitted the Government to buy all cables abroad without having to pay any duty. The manufacturing of submarine cables was then in its infancy, you might say, and it is even so to-day. There are only about three of these manufacturers in this country that can make long cables, as Major Russel has said. The Bishop Gutta-Percha Company now has a machine for making cables of any length; so has the Okonite company and the Safety Insulated Wire and Cable Company. They have been encouraged to expend and put out their capital in that way by the protective features of the McKinley bill. These companies are the only three I know of to-day possessing the facilities for making long and short cables. The difficulty in making these cables in this country has been due simply to the lack of proper armor machines.

It is a very difficult thing to lay up a long length of cable unless you have the proper machinery, and now these three companies have that machinery. The reason we use gutta-percha in the cool water of northern latitudes is because of its lasting and known good quali-

(Witnesses: Robinson, Zappone, Moore.)

ties. But we have not confined ourselves alone to gutta-percha. We used rubber at Key West, and from Manteo to Nags Head, wherever we found the rubber cable was better suited, as it was in both of those cases; in the warm water we use it in preference to the gutta-percha.

Mr. SAMUEL. What is the length of the longest cable laid by the Bureau?

Mr. ROBINSON. The longest cable we have is 35 miles.

Mr. SAMUEL. The statement of the Bishop Gutta-Percha Company that there is only a difference of 5 per cent in the cost is borne out, is it?

Mr. ROBINSON. Yes, sir; that is borne out by the facts.

Mr. SAMUEL. In the bids received?

Mr. ROBINSON. Yes, sir; by the facts. I do not know that I have anything further to say, unless the chairman has some questions to ask.

The CHAIRMAN. No; I have none.

Mr. ZAPPONE. Mr. Chairman, do you wish any more expert testimony on this cable question?

The CHAIRMAN. If Mr. McCay has anyone to come here, we will hear him, but we have gotten from Major Russel the view of the Signal Corps, and that is all I care to inquire about, unless some member of the committee would like to inquire further.

Mr. ROBINSON. I might say there are many different reasons as to the selection of the best cable. For instance, the laying up of the armor is a very important factor in the laying up of cables. I have a case in mind where we took up a cable made by a company that manufactures cable for the Signal Corps, which was laid from Narragansett Pier to Block Island. That was laid during 1898, and in 1902 I took that cable up, 20 miles in length, and found the armor quite defective in many places. There was one place where the armor was entirely gone for 8 miles on account of its poor construction.

If the armor is loosely put on the insulated wires squeeze through. If it is tightly put on and put on by the proper machine this will not occur. Every time there is a kink of any kind in the cable the wires will spring up, and if the armor is not properly put on it will allow the insulated wires to come through the armor wires and be exposed to injury.

Mr. ZAPPONE. It affects the durability.

Mr. ROBINSON. Yes; it affects the durability. That cable was practically of no use after four years of service.

The CHAIRMAN. That was a rubber cable?

Mr. ROBINSON. Yes; a rubber cable.

(At 12.55 o'clock p. m. the committee took a recess until 1.30 o'clock p. m.)

STATEMENT OF PROF. WILLIS L. MOORE, CHIEF OF WEATHER BUREAU, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. Are we to understand, Professor, with reference to the plant to which your attention has been called, on Mount Weather, that so far as that enterprise is concerned the Agricultural Committee were consulted with reference thereto before you em-

barked thereon, and that the regular development from that time on has been after conversations with and understandings with them?

Professor MOORE. That is the understanding; after a full discussion and understanding with that committee; and with their belief that my authority under the direction of the Secretary was ample to go ahead with that work.

The CHAIRMAN. That was your view of the construction of the law, and they concurred with you in that construction?

Professor MOORE. Yes.

The CHAIRMAN. And that was without any protest on the part of the committee? Was there any dissenting opinion?

Professor MOORE. Not one.

The CHAIRMAN. So that the Committee on Agriculture have, so far as their attention has been called to the subject, acquiesced in this, and the subject was called to their attention in the beginning?

Professor MOORE. The hearings will show that this has been thoroughly gone over.

The CHAIRMAN. And it is a fact that their attention was called to it at the inception?

Professor MOORE. Yes.

The CHAIRMAN. And that there was no protest made so far as you know by any member of the committee?

Professor MOORE. No, sir.

The CHAIRMAN. Against the construction placed on the statute, or the inauguration of the enterprise?

Professor MOORE. Yes; that is true. And my mind is very clear for this reason, that after I had explained the necessity of taking up experimentation, they seemed to be anxious that I should begin such experimentation, and the chairman asked me how much was necessary to be set aside for the purpose—I do not know whether that was taken down by a stenographer or not—and my answer was that I believed that the authority was ample without any specific amount being set aside for Mount Weather, and they then read that authority for so many buildings, and they said they thought that that authority was wide open to do anything that I wanted to do.

The CHAIRMAN. And there not only never has been any dissent on the part of the Agricultural Committee since that time as the project has been developing, but, on the contrary, they have assented to what you have done, or approved what you have done?

Professor MOORE. Not only that, but several members of the committee have visited the institution and kept track of the progress of the work.

(At 4.40 o'clock p. m. the committee adjourned.)

(Witness: Moore.)

COMMITTEE ON EXPENDITURES IN THE
AGRICULTURAL DEPARTMENT,
Thursday, January 10, 1907.

The committee this day met.

Present: Hon. C. E. Littlefield, chairman, and Hon. E. W. Samuel.

The absence of Hon. C. R. Davis and Hon. E. S. Candler was necessitated by a meeting of the Committee on Agriculture, of which they are both members.

STATEMENT OF PROF. WILLIS L. MOORE—Continued.

The CHAIRMAN. Who exercises the responsibility of determining where the observatories shall be located, what observatories shall be built? Is that a matter you have charge of as the head of the Bureau?

PROFESSOR MOORE. I recommend where buildings or observatories shall be established, and the Secretary of Agriculture approves or disapproves.

The CHAIRMAN. Was that course followed in connection with the Mount Weather project?

PROFESSOR MOORE. In each case; yes, sir.

The CHAIRMAN. So that the Mount Weather project, while it may have originated with you, before any steps were taken received the approval of the Secretary?

PROFESSOR MOORE. Yes, sir; and was discussed with the Agricultural Committee of the House.

The CHAIRMAN. Was there any discussion between you and the Secretary with reference to the scope of legislation?

PROFESSOR MOORE. None whatever. That was all with the committee.

The CHAIRMAN. You only discussed the matter of the general project with the Secretary?

PROFESSOR MOORE. Yes, sir.

The CHAIRMAN. The Secretary's attention was not called to the legislation, the legislative authority, but that matter was discussed with the committee?

PROFESSOR MOORE. Yes, sir; the committee taking the view that as we have the authority under existing law to construct a number of Weather Bureau buildings, which were constructed under my supervision with the approval of the Secretary, that Congress had left it to our discretion where we would place them, and so I explained to the committee it was our purpose to put one or two buildings at Mount Weather each year until we got what we needed for the development of that project. The scheme has been one of growth.

The CHAIRMAN. You have already described, I think, something like five buildings out of nine?

PROFESSOR MOORE. Yes, sir. We have more buildings than that.

The CHAIRMAN. Just describe as concisely as may be the buildings that have been constructed in addition to the five and the uses to which they are put.

PROFESSOR MOORE. Maybe it would be better for me to describe each one of the buildings.

(Witness: Moore.)

The CHAIRMAN. Yes, sir; put them in the order of their construction and development.

Professor MOORE. First, the administration building, which contains the regular meteorological station; such a meteorological station as is established at New York, Boston, and Chicago.

The CHAIRMAN. Such a station as would be typical of the average weather station?

Professor MOORE. Yes, sir. That was the first building constructed, because we knew we would need it at that place whether we carried on the research or not. That building, as I say, was constructed as a regular meteorological station and for the living quarters of the observer and his family.

The CHAIRMAN. Does that building furnish accommodations for anybody besides the observer and his family?

Professor MOORE. Yes, sir; it does.

The CHAIRMAN. To what extent?

Professor MOORE. Then when I talked with the committee it was decided to add to this simple Weather Bureau station certain lines of research and we changed what we had intended to be an attic into sleeping apartments, where we might quarter the people engaged in the research work. That building includes offices, library, kitchen, and dining room, which serve all of the higher class of employees at Mount Weather, each employee paying into a mess fund \$1 per day for the maintenance of the kitchen and the dining room.

The CHAIRMAN. Does that serve all the employees?

Professor MOORE. All the employees of the rank of observer and above. They pay \$1 a day into the mess fund, or slightly less if it is found that less will meet the requirements; but as a rule nothing less than \$25 a month will meet the expenses of each employee. That fund pays the cook and the waiter and provides for the care of the sleeping apartments.

The CHAIRMAN. And furnishes the food?

Professor MOORE. And furnishes the food; all of it.

My regulations allow the mess fund to own a cow, but they have not yet bought one. Now, that is what we call the administration building. That was the first building constructed.

The CHAIRMAN. That furnishes accommodations for the observer and his family and how many people in addition?

Professor MOORE. I would have to count them; about 10 people are quartered in that building now.

The CHAIRMAN. In addition to the observer and his family, or including him?

Professor MOORE. Everybody. It may accommodate 15.

The CHAIRMAN. And they are continuously employed there the year round?

Professor MOORE. Yes, sir. I go up there in the summer. I usually go along in June sometime, and unless there is something that takes me away I stay there probably until the end of August.

The CHAIRMAN. In the administration building?

Professor MOORE. I quarter myself in the administration building, and I take my secretary with me, and I have my official work come there every day; it comes in the morning and reaches me at noon, and I pass on it all, and in that time I work out the plans for the develop-

(Witness: Moore.)

ment of this institution; and, furthermore, I am able, as the law compels, to superintend the building operations.

Mr. SAMUEL. How far is Mount Weather from Washington?

Professor MOORE. Fifty-eight miles by rail and 6 by wagon up the mountain.

The CHAIRMAN. Are the 10 people you refer to, with the incidental use you yourself make of it during the summer season, the only use that is made of the station by persons residing there? Does that include everything?

Professor MOORE. Administration officers.

The CHAIRMAN. They are included in the 10, or do they live in other accommodations?

Professor MOORE. There are no living accommodations there for the higher class employees except this building I am now speaking of.

The CHAIRMAN. The administration building?

Professor MOORE. There are living quarters over the wagon house.

The CHAIRMAN. We will reach that as you go along?

Professor MOORE. Yes, sir. The next building was the wagon house and stable constructed for the care of the Government horses, four or five stalls and one box stall.

The CHAIRMAN. How many horses have you there?

Professor MOORE. Five.

The CHAIRMAN. To what use are the horses put?

Professor MOORE. Three of them are for work between the station and the mountain, hauling supplies and the officials back and forth from the station to the mountain. Two of them are working horses that work around the grounds.

The CHAIRMAN. That is in connection with the repair and the development of the grounds?

Professor MOORE. Yes, sir. During the last two or three years we have hired in the summer season anywhere from two to four extra teams. The hiring of teams will not longer be necessary, as our work on the grounds is practically done.

The CHAIRMAN. My last question was whether there were any other persons residing at Mount Weather than those to whom you have referred as residing in the administration building?

Professor MOORE. There are others.

The CHAIRMAN. You will reach them as you go along?

Professor MOORE. Yes, sir.

The CHAIRMAN. Are there some residing in the stable?

Professor MOORE. Yes, sir; in this wagon house and stable one man and his family, a mechanic, occupy quarters in the upper part of that building, three or four small rooms. That man has recently been brought back to Washington and those quarters are vacant; they were vacant the last time I was there, and have not been assigned to anybody yet.

The CHAIRMAN. Why did you bring him back to Washington, because at this period of the year there is no work for him?

Professor MOORE. No, sir; because he has been there four or five years and his boy got large enough to go to the public schools and he urged us to give him an assignment in Washington. We brought him back, and he is in his same grade, that of mechanic.

(Witness: Moore.)

The CHAIRMAN. Does some one else take his place out there, or is that not necessary?

Professor MOORE. No one has occupied his quarters. I have not selected the man yet to take his position in the power house where he was employed. That we shall do a little later.

The CHAIRMAN. How long has the place been vacant?

Professor MOORE. It has not been entirely vacant; the work has been divided up among several other people, but ultimately I will probably pick a man.

The CHAIRMAN. Why can not these other people continue to do the work without the necessity of the additional man?

Professor MOORE. They might continue to do his work, but we shall need a man in the place this man occupied permanently, because our work will increase rather than decrease, and we shall have to add to the permanent working force quite a little, probably half a dozen men, some of higher and some of lower grade, before we get through.

The CHAIRMAN. How long have these other employees been doing the work that heretofore was done by the mechanic; about how long since the mechanic left Mount Weather and came to Washington have the duties he was then discharging been performed by other employees?

Professor MOORE. This is only one of several mechanics we have there. He was a low-grade mechanic, and was first appointed as a laborer and then classified. This man was employed under our chief mechanic, who has had charge of the power plant.

The CHAIRMAN. How long have you been able to get along without him?

Professor MOORE. He has been here only two or three weeks, not a month yet. That is my recollection, and I have not picked anybody who will definitely take his place.

The CHAIRMAN. If during an absence of three or four weeks you have been able to get along without inconvenience, if that is a fact—

Professor MOORE. We have not, and probably when we fill his place we shall fill it with a higher grade man.

The CHAIRMAN. I would like to ask whether you have been able to get along for three or four weeks without embarrassment. If you had embarrassment, that is another thing, but if you have had no embarrassment that would rather indicate that he would not have been necessary before that time.

Professor MOORE. Precisely; but contrary to that I have discussed with the supervising director the advisability of putting even a more expensive man in his place, getting a man who has a higher degree of skill as a mechanic than this man had. We have not yet selected that man. We have discussed the filling of his place with a man of higher technical knowledge. In the meantime they get along the best they can.

The CHAIRMAN. What is the next building?

Professor MOORE. Our next building is a sort of wagon house and storehouse, a cheaply constructed building.

The CHAIRMAN. Is it built of wood or brick?

Professor MOORE. It has plain board sides. It is a building that cost about \$300 or \$400, did it not, Mr. Zappone?

Mr. ZAPPONE. I think so.

The CHAIRMAN. What did the administration building cost?

Professor MOORE. It is pretty hard to state what it cost, about \$20,000.

The CHAIRMAN. Of what is it constructed?

Professor MOORE. Stone and cement; stone taken from the ground.

The CHAIRMAN. Is it rubblestone?

Professor MOORE. Yes, sir.

The CHAIRMAN. What did you construct the stable of?

Professor MOORE. Stone up to the second floor, and then we shingled down the sides. The wagon house is a cheaply constructed affair, a sort of storehouse for all kinds of rough things, and it furnishes additional stable room. It furnishes stable room that may be utilized by any of the employees who desire to keep a horse. We allow each one of the research observers there, if he wishes to keep a horse, the quarters, he paying the entire cost of the forage. We encourage that.

The CHAIRMAN. You furnish the quarters and he furnishes the subsistence?

Professor MOORE. Yes, sir. Then we require him to use his own horse and vehicle in transporting himself back and forth to the station and wherever he may go.

The CHAIRMAN. And he can do more work than if he had to travel on foot?

Professor MOORE. Yes, sir. It adds to his enjoyment. It is a lonely place during a considerable portion of the year, and we try to make the conditions as agreeable as possible.

Now that accounts for three buildings. The fourth building is what we call the power plant. That is a stone building up to the second floor and then constructed of shingles. I am trying to give you the dimensions of that building.

The CHAIRMAN. State them approximately.

Professor MOORE. Approximately it is about 80 feet long and 30 feet wide. It has an ell that runs back, which is about 50 by 30 feet, something like that.

The CHAIRMAN. You develop steam and electricity?

Professor MOORE. No; we have a gasoline engine. The electrolyzer requires an engine. It decomposes water and makes hydrogen gas for the inflating of balloons. The engine also runs a compressor for the making of liquid air, which we need in the testing of many of our instruments and other apparatus from a very low up to a very high temperature.

The CHAIRMAN. Prior to the construction of that building, where did you get the power you used for that purpose?

Professor MOORE. We did not use any; we were not doing any of this line of research work.

The CHAIRMAN. This is an improved scientific method for accomplishing more effective and valuable results?

Professor MOORE. Yes, sir.

The CHAIRMAN. Of which you were not able to avail yourself prior to the construction of the building and the construction of this plant?

Professor MOORE. That is right. In other words, it is a machine shop to design and construct and devise apparatus that we will need

in our research work. Then we have a small room fitted up with lathes and apparatus for fine metal work. We have one chief mechanic, who is a skilled worker in metals.

The CHAIRMAN. It is for the purpose of keeping the apparatus in repair or making new apparatus?

Professor MOORE. Yes, sir; and for making pieces or parts or the whole of the experimental apparatus.

The CHAIRMAN. And developing new ideas?

Professor MOORE. Yes, sir. Then there is a little woodworking place, where we do fine woodwork, making the skeletons for kites, and do any other character of fine woodwork. This establishment is fitted up with tools for the doing of fine woodwork.

The CHAIRMAN. For what other purpose do you use the power?

Professor MOORE. We may use the power for lighting the premises. These buildings are all wired so that we can light them with electricity.

The CHAIRMAN. But up to date you do not do so?

Professor MOORE. Only occasionally have we run the power plant to light the buildings at night, for the reason that we have not got the buildings completed and it seems too expensive to run the engine to light this administration building.

The CHAIRMAN. How many horsepower?

Professor MOORE. Thirty-five horsepower. We are now planning to install a system of storage batteries, so while the engine is running during the day it may store up the necessary energy to light the premises at night; we may use electricity without running the engine at night.

The CHAIRMAN. Is there any other purpose for which you use the power? Do you use it for heating purposes?

Professor MOORE. No, sir.

The CHAIRMAN. Then the manufacture of gas for balloon experiments and liquid air and the preparation for lighting, as you may have occasion to use it, are the only uses to which the power plant will be devoted?

Professor MOORE. And the making of apparatus.

The CHAIRMAN. The power proper.

Professor MOORE. We have these two shops.

The CHAIRMAN. You have machines in the metal and wood branches?

Professor MOORE. Yes, sir; we have a small oil engine that we can use for running some of this shafting, and many times we do not have to run the larger engine when using power.

The CHAIRMAN. But up to this stage the building has been constructed and the power installed for those purposes?

Professor MOORE. Entirely.

The CHAIRMAN. What has been the cost of the construction of the building and the installation of the power to produce those results, approximately?

Professor MOORE. I can only answer that question approximately; but I am of the opinion that the engine, the electrolyser, the compressor for the making of liquid air, the various tools and appliances, the dynamo, and the building itself cost \$15,000 or \$20,000. Do you think that is a fair estimate, or is it too high, Mr. Zappone?

(Witnesses: Moore, Zappone.)

Mr. ZAPPONE. It is not too high.

The CHAIRMAN. Would it not have been practicable to have utilized power elsewhere for this purpose?

Professor MOORE. It would have been impossible. There is no power anywhere in that vicinity.

The CHAIRMAN. You could not have produced these results by power elsewhere and then transported the products to the Mount Weather station for practical use?

Professor MOORE. No; we must have our experimental shops right on the ground.

The CHAIRMAN. In other words, if you have this gas and liquified air power which you have indicated, it really requires its production there?

Professor MOORE. Yes, sir; it makes it necessary.

The CHAIRMAN. It is not practicable to do it otherwise?

Professor MOORE. No, sir; this ell is about 50 by 30 feet, and has an opening clear to the ceiling, a unique room, designed to store inflated balloons and kites.

The CHAIRMAN. Is it two or three stories high?

Professor MOORE. Two stories high. We have large kites, some of them half the size of this room. We call it a "kite stable." We do not know any better term.

The CHAIRMAN. You have no other place on the property where you can store articles of that size?

Professor MOORE. No, sir. Now, about 100 yards from this power plant there is a little circular building about 20 feet in diameter, one story and a half high. It is all in one story. It rotates on a track. You can stand inside of it and turn a crank and it will turn about.

The CHAIRMAN. It revolves on an axis?

Professor MOORE. Yes, sir. One side is flat. That side opens with folding doors, and from out of that opening we send the kites. Inside this building is a dynamo. There is a reel that contains several miles of wire, and apparatus for measuring the angle that the kite wire is making with the earth surface.

The CHAIRMAN. What does that indicate, the velocity of the wind?

Professor MOORE. The angle indicates the altitude of the balloon. This building contains a little inclosure for the taking of the temperature readings, so we know the temperature at which the kite starts. The kite carries a meteorograph, a little box about the size of that book [indicating], if it were 4 inches thick instead of 1.

The CHAIRMAN. That indicates the height to which the kite ascends?

Professor MOORE. Yes; the height to which the kite ascends.

The CHAIRMAN. You explained that the other day?

Professor MOORE. Yes, sir; it is for the purpose of getting measurements in the upper air of temperature, pressure, and humidity; it is highly essential in the study of the problems of the weather that we should know the conditions on the higher levels, especially up to an altitude of at least 2 miles. Most of our storms operate entirely below the 6-mile level. The greatest energy of storms is probably at an altitude of 3 miles. Above 6 miles it is rarely that any

storm affects the air at all. It is undisturbed by the cold waves and other atmospheric conditions of the lower level. With our present observatories we are measuring only the meteorological conditions at the bottom of the ocean in which we live.

The CHAIRMAN. Ocean of air?

Professor MOORE. Yes, sir; and the object of this observatory is to give us readings as high up as we can get them. We want to know where the diurnal radiation ceases. We are of the opinion that if we maintain a thermometer even 2,000 feet above the mountain we will find no variation between the heat of midday and that of midnight. We want to know where the diurnal radiation ceases. We would like to find out where the annual radiation ceases. These are some of the problems we want to solve by keeping the instruments up in the air. We shall ultimately suspend instruments in the air and keep them there days at a time.

The CHAIRMAN. That is the general purpose of that building?

Professor MOORE. Yes, sir.

The CHAIRMAN. Is that building made necessary by reason of the fact that you have to have in it apparatus for the purpose of carrying on from a physical view point these experiments and to protect your employees from the weather so you can carry them on at any time?

Professor MOORE. Yes, sir.

The CHAIRMAN. This is the Ben Franklin house that you have there?

Professor MOORE. Yes, sir.

The CHAIRMAN. How expensive was that building?

Professor MOORE. It was not very expensive, probably a couple of thousand dollars.

The CHAIRMAN. Is it constructed of wood?

Professor MOORE. Yes, sir.

The sixth building is an old cottage that was on the premises when we bought them. It is down under the hill out of sight of the administration building. We repaired it and put it in condition, so that some of our workmen might live in it.

The CHAIRMAN. What was it, a farm building?

Professor MOORE. It was supposed to be a farm cottage. We have repaired it so that there are two apartments, one of four and one of five or six rooms. We have supplied it with water from a spring a little higher up, and we have had for a considerable time back the families of two of our workmen quartered in this building. They get, in addition to their salaries, quarters. That is the sixth building.

The seventh building is what we call the physical laboratory. That is a building as large as the present administration building, if not a little larger.

The CHAIRMAN. What is it constructed of?

Professor MOORE. Stone.

The CHAIRMAN. Rubblestone?

Professor MOORE. Rubblestone and cement.

The CHAIRMAN. I suppose that kind of a structure is ornamental as well as utilitarian?

Professor MOORE. It is a handsome building of rather plain architecture.

(Witnesses: Moore, Zappone.)

The CHAIRMAN. Not constructed with reference to its looks; but with reference to its utility and the economical use of the material on hand?

Professor MOORE. Yes, sir. It has a very nice architectural effect. That building is three stories high. It is now just going under roof. We hope to carry on there experiments with regard to the chemical condition of the air. We propose to count the dust motes and to study the ionization of the air with relation to condensation in the form of fog, rain, or snow. We purpose in this building to study the electrical changes of the atmosphere. It is the general laboratory of the place in which a wide range of experimentation will take place.

The CHAIRMAN. Give us the contemplated cost of this last building just now in the process of construction?

Professor MOORE. We have been doing the work by day's work, hiring our workmen. I have not had the records separated so that I could tell what it is going to cost, but I presume, \$25,000.

Mr. ZAPPONE. The estimated cost was \$20,000. That is the amount upon which the pay of the architect was based.

Professor MOORE. Considering what we spent last year, I do not believe we will get through with \$20,000.

The CHAIRMAN. Your idea is that it will cost approximately \$25,000?

Professor MOORE. Yes, sir.

The CHAIRMAN. Will there be additional cost for apparatus and furnishings?

Professor MOORE. Yes, sir.

The CHAIRMAN. Approximately, how much?

Professor MOORE. There will be probably \$5,000 of apparatus in that building before we get through.

The CHAIRMAN. Will there be any furnishings in addition to that?

Professor MOORE. No, sir. We will finish it nearly up in stone or metal.

The CHAIRMAN. The contents of the building will cost approximately \$5,000?

Professor MOORE. Yes, sir.

The CHAIRMAN. And the whole cost of the building will be \$30,000 when completed?

Professor MOORE. Yes, sir.

The CHAIRMAN. Is it contemplated to have quarters for any of the employees in this building?

Professor MOORE. No, sir. We have completed and equipped two magnetic observatories.

The CHAIRMAN. Those you have described before?

Professor MOORE. But not in this schedule. That will make nine buildings. They are specially constructed buildings, designed for the purpose of maintaining as nearly as possible uniform temperature summer and winter. In those two buildings we have probably the finest set of magnetic instruments in the world.

The CHAIRMAN. What did those two buildings with their contents approximately cost?

Professor MOORE. The instruments alone cost us about how much, Mr. Zappone?

(Witnesses: Moore, Zappone.)

Mr. ZAPPONE. I think you set aside \$10,000 for the apparatus.

Professor MOORE. They cost \$10,000 or \$12,000.

The CHAIRMAN. And the buildings cost how much in addition thereto?

Professor MOORE. I can only roughly estimate the cost, because we have had a force of men working part of the time on this building and part of the time on another, carrying on two or three buildings, and at the same time we have built a stone wall and roads with the same gang of men, but I am under the impression that those buildings have cost probably \$6,000 apiece.

Mr. ZAPPONE. I think that is a little low; \$8,000 apiece is the cost on which the architect based his charges for services.

The CHAIRMAN. That would be \$16,000 for the two buildings and \$12,000 for the contents, approximately \$28,000 for that feature of the proposition?

Professor MOORE. Yes, sir.

The CHAIRMAN. Are these instruments of a durable character?

Professor MOORE. Yes, sir; they practically last forever.

The CHAIRMAN. So it is comparatively inexpensive to keep the plant in good condition?

Professor MOORE. Yes, sir. I have two men assigned to that work. One is doing it now, but it will never require over two observers to maintain the records and probably two or three men ultimately to work up and discuss the data.

The CHAIRMAN. You have had architects prepare plans and specifications and estimates prior to the building of any of these buildings?

Professor MOORE. Yes, sir; in each case.

The CHAIRMAN. What architects have you employed for that purpose?

Professor MOORE. We have had Mr. Harding for part of the buildings and Mr. Jackson for some of the other buildings.

The CHAIRMAN. Are those men engaged in private business?

Professor MOORE. Yes, sir; they are regular architects.

The CHAIRMAN. Have you opened the work for the architects to competition?

Professor MOORE. No; I do not think we have done that. We have allowed them a very moderate compensation.

The CHAIRMAN. What do you give them?

Professor MOORE. Mr. Zappone can answer that question better than I can.

Mr. ZAPPONE. They get 5 per cent.

The CHAIRMAN. That is the regular architect's fee?

Mr. ZAPPONE. Yes; that is the charge fixed by the architects' association.

The CHAIRMAN. What do they do for that 5 per cent?

Professor MOORE. They draw the plans and superintend the construction.

The CHAIRMAN. While these buildings are in the course of construction they are all in charge of a responsible architect?

Professor MOORE. Yes, sir.

The CHAIRMAN. Would it not be better to have the plans made by the Supervising Architect's office here in Washington?

Professor MOORE. It might be done.

(Witnesses: Moore, Zappone.)

The CHAIRMAN. Have you ever made any inquiry along that line?

Professor MOORE. No; we have not. We thought we could do the work quicker by getting some man we could fully control and send there whenever we wanted him to go.

The CHAIRMAN. You never have investigated the question as to whether or not the Supervising Architect's force could take up this work and do it without increasing their help, and therefore, so far as the 5 per cent commission is concerned, without expense or cost to the Government?

Professor MOORE. My recollection is not clear whether I asked Mr. Zappone to see the Supervising Architect about that or not.

Mr. ZAPPONE. The matter was discussed several times, but I do not think we ever made any application to the Supervising Architect.

The CHAIRMAN. There was no inquiry ever made at his office to ascertain whether it could be done?

Professor MOORE. No, sir.

Mr. ZAPPONE. I think it was Mr. Keep, when the Keep Committee visited the Weather Bureau a short time ago, who made the same suggestion, and you said that it might be done—

Professor MOORE. Yes; I remember that.

Mr. ZAPPONE (continuing). But as Congress had placed it under your supervision you stated that you had engaged the architects from the outside. I would like to add in that connection that the character of these buildings, their peculiar construction, made it necessary for the official who had the ideas in regard to their construction to give his ideas to the architect and let the architect work them up in a sort of tentative way. Take the physical laboratory; you could not give an architect general ideas on that building and have him get up the plans. The official who furnished the ideas for that building, also the magnetic observatories, stood alongside the architect and made suggestions as the plans developed step by step.

The CHAIRMAN. Assuming equal intelligence in the Supervising Architect's office and in the case of private architects, why could not the same course be pursued?

Mr. ZAPPONE. I was not speaking of that. I had reference more to the securing of competition on the work. I have no doubt that the Supervising Architect's office can do the work. They can do any work that any private architect can do, but it was not feasible to secure competition on these buildings, owing to their peculiar construction.

The CHAIRMAN. So, as I understand, you know of no reason why that would not be practicable, provided the Supervising Architect's office is in a position to do the work?

Professor MOORE. There is no reason why that could not be done, provided the architect detailed as assistant would work under my direction.

The CHAIRMAN. There is no difficulty about taking that matter up if you add any new buildings?

Professor MOORE. No, sir. I think it is a good suggestion and I will act on it.

The CHAIRMAN. Now, go on with your next building.

Professor MOORE. There is just one other building that is in the process of construction. That is a small office and residence building adjacent to the physical laboratory. It is intended to furnish the

living, office, and library accommodations for the research director in charge of this power plant and the kite work. This has been necessary, because of the fact that the administration building would not accommodate quite all of the scientific workers we will have there before this season is out.

The CHAIRMAN. How much will that building cost?

Professor MOORE. It is a small cottage. There are four rooms on the upper floor and a kitchen and dining room on the first floor. It will be used by the research director. He is a scientific man.

The CHAIRMAN. The man in charge of the power plant?

Professor MOORE. The air research work includes the power plant, balloons, and that line of investigation.

The CHAIRMAN. Where is he quartered now?

Professor MOORE. He and his wife are quartered in the administration building. He will be quartered in this new building, and he will have his office and computing room and library on the first floor. The first floor will be given up to official purposes, except two rooms, and the upper floor will be for living purposes.

The CHAIRMAN. Can not he get along where he is?

Professor MOORE. We have not room enough in this one building to quarter all the employees.

The CHAIRMAN. You will have a duplicate library in this new building. You already have one in the administration building?

Professor MOORE. "Library" was not a good term. He will have in that room his books and papers on his particular line of work. It will not be a library.

The CHAIRMAN. You do not contemplate a duplication of the library?

Professor MOORE. No, sir; certainly not.

The CHAIRMAN. He is now living with his family in the other building?

Professor MOORE. Yes, sir; but we have not room in that building for all the people we shall need to carry on this work.

The CHAIRMAN. You have to have more employees than you can now accommodate in the administration building, and for that reason you need these additional accommodations for this observer?

Professor MOORE. Yes, sir.

The CHAIRMAN. What is this cottage to cost?

Professor MOORE. It ought not to cost over \$6,000. We are building it now.

The CHAIRMAN. That is in the process of construction?

Professor MOORE. Yes, sir.

The CHAIRMAN. There are two buildings in the process of construction?

Professor MOORE. Yes, sir.

The CHAIRMAN. One costing practically \$30,000, with contents, and the other \$6,000. Do you furnish this building?

Professor MOORE. Only the offices in it. The Government furnishes the administration building.

The CHAIRMAN. In the administration building did you provide the furniture for the use of the men occupying it?

Professor MOORE. We furnished that building entire, because we have here a force that is continually changing—a good many single

(Witnesses: Moore, Zappone.)

men and officials, who are going and coming from this building all the time—but our regulations provide that outside of this building quarters and heat may be furnished, but not furnishings. This is the only building furnished by the Government. The regulations have been printed and posted in the premises in regard to just what the Government will furnish, and they are predicated largely on the regulations of the Army and Navy.

The CHAIRMAN. Who occupies the quarters that you use in the summer season for the discharge of duties there during part of the year?

Professor MOORE. They may be occupied by anybody. They are not occupied permanently, but are in reserve for an emergency.

The CHAIRMAN. So you have in the administration building room for the observer, for whom this cottage is being constructed, now living there with his family, and in addition thereto the spare room you hold for emergency, and, among other things, which you occupy during a part of the season?

Professor MOORE. Yes, sir.

The CHAIRMAN. Why would it not be even cheaper to add additional living quarters to this administration building than it would be to go to the expense of a new house to the amount of \$6,000?

Professor MOORE. We could not add to this building.

The CHAIRMAN. What is the reason?

Professor MOORE. It is so constructed that it would cost us as much as it would to construct this building. Then there is this important consideration: That is, we can not always get men without families, and we do not want to quarter families too close together. My object in having this little cottage off there was to enable me to put some man who had a family over there. We do not want to have more than the wives of one or two men in the same building, because, while they are nice people and all that sort of thing, it is not a good plan in official business to bring the wives of the officials too close together, and so I want to have at least one cottage where I can care for a family by itself. It may be necessary to add still another cottage for another professor. We have to look a little after the harmony of the institution, and it is well to separate people a little.

The CHAIRMAN. You are arranging for a pretty good community out there ultimately?

Professor MOORE. Yes, sir.

The CHAIRMAN. How much land does the Government own there now?

Professor MOORE. Between 88 and 90 acres.

The CHAIRMAN. What was the original purchase price?

Professor MOORE. We got it in several different lots, but altogether inside of \$2,500. Is not that right, Mr. Zappone?

Mr. ZAPPONE. Yes, sir; about that sum.

The CHAIRMAN. Including the purchase price of the land and the construction of these various buildings and the improvement of the property up to date the expenditure has been about \$120,000?

Professor MOORE. It was approximately \$120,000 up to this time last year. Possibly by this time the expenditures must have reached \$150,000, and, as I stated in the beginning, if the committee continued to approve our plans as we go along we shall probably spend

\$200,000 or \$225,000. A year ago I gave to the Agricultural Committee this estimate in answer to the inquiry of the chairman as to what would be the total cost of Mount Weather, and I said \$225,000 if we go ahead according to the plans that we have already discussed and carry them out completely. We could stop at any time, as the work we have done is all useful. It will not run over that. I anticipate not to exceed 25 people will be able to carry on the work there for a good many years.

The CHAIRMAN. You say the plans that you discussed. What are we to understand by that—that the general scope of the project or plan was laid out tentatively before the committee in the very beginning?

Professor MOORE. Yes, sir.

The CHAIRMAN. Not that their attention has been called to it as the matter has developed from time to time, but that the general project was discussed with them before you originated the idea?

Professor MOORE. Yes, sir.

The CHAIRMAN. So that the Committee on Agriculture, for instance, when they indorsed the project you have described were fully advised as to the probable scope and the probable expenditure that was involved therein?

Professor MOORE. Not only that, but after the first session of Congress following the beginning of the work on what is now the administration building, my annual report, printed in pamphlet form, contained a complete discussion of all of the problems that we had then in mind to investigate at Mount Weather, and I exploited in that report the whole scheme, wrote it out in detail, and it was printed and in the hands of the committee before the next appropriation was made.

The CHAIRMAN. That was after the origination of the project?

Professor MOORE. After the beginning of the Mount Weather station.

The CHAIRMAN. After the origination of the project?

Professor MOORE. Yes, sir.

The CHAIRMAN. But prior to that time you had a full conference with them in relation thereto?

Professor MOORE. Yes, sir; and they have gone very thoroughly into all these things, as thoroughly as you are going now.

The CHAIRMAN. Will you kindly send us a copy of that report so that we will have it to refer to?

Professor MOORE. Yes, sir. In 1905 I again wrote a complete report on Mount Weather, up to date.

The CHAIRMAN. Now, we have in a general way the fact that the project contemplates, say, at the maximum, a \$250,000 investment, and then the employment of 25 employees and that would represent an annual expenditure for the maintenance of the plant at Mount Weather of approximately what—\$40,000.

Professor MOORE. I could hardly say. Probably twenty permanent employees could carry on the work for a good many years to come.

The CHAIRMAN. How many have you there now, ten in the administration building?

Professor MOORE. It depends upon whether you mean how many permanent or temporary people. I think there are ten scientific em-

ployees, and the aids to the scientific people probably give us fifteen or sixteen.

The CHAIRMAN. I take it that the ten men in the administration building are permanent employees?

Professor MOORE. That is right.

The CHAIRMAN. Then you change your estimate from twenty-five to twenty?

Professor MOORE. Yes, sir; as being the number of scientific people that would probably be required for a number of years to come.

The CHAIRMAN. Not only the scientific people, but the mechanics?

Professor MOORE. I include them in the aids to the scientific people.

The CHAIRMAN. The twenty includes employees of all kinds?

Professor MOORE. Yes, sir.

The CHAIRMAN. And that represents approximately how much of an annual expenditure?

Professor MOORE. I gave an estimate to the Agricultural Committee two years ago that when we got through the expense of maintenance would be about \$25,000 a year. It may be \$30,000.

The CHAIRMAN. Do not nearly all these employees get over a thousand dollars?

Professor MOORE. No; they get from \$480 to \$3,000. Three thousand dollars is the largest salary. That is for the supervising director.

The CHAIRMAN. How many of these ten men that you have in the administration building get less than a thousand dollars, or do any of them get less than a thousand dollars?

Professor MOORE. Let me go over the list. One gets \$2,000; two get \$1,400; two get \$1,200; one gets \$1,000; there are two receiving \$720; two receiving \$600; two receiving \$480.

The CHAIRMAN. Will you do this, Professor? We will not stop to go into detail. You might prepare and have inserted, as a part of your examination, the exact salary list, to-day, of the men in your employ at Mount Weather.

Professor MOORE. That can be gotten from the records. Mr. Zappone will furnish that.

Mr. ZAPPONE. The list is as follows:

Employees on duty at Mount Weather, Virginia, January 10, 1907.

Number in grade.	Designation.	Salary of each.
Permanent force:		
1	Professor of meteorology	p. a. \$3,000.00
1	Research director	p. a. 2,000.00
1	Research observer	p. a. 1,400.00
1	Assistant physicist	p. a. 1,400.00
1	Research observer	p. a. 1,200.00
1	Observer	p. a. 1,200.00
1	Skilled mechanic	p. a. 1,200.00
1	Assistant observer	p. a. 840.00
1	Unclassified laborer	p. a. 720.00
2	Unclassified laborers	p. a. 600.00
2	Do	p. a. 480.00
1	Unskilled laborer	p. a. 360.00
Building force:		
1	Foreman	p. d. 5.00
1	Stone mason	p. d. 3.50
9	Carpenters	p. d. 2.50
1	Painter	p. d. 2.50
6	Unclassified laborers	p. d. 1.50

(Witness: Moore.)

The CHAIRMAN. Your estimate is that ultimately, when your plant gets into working shape, and you are in good business condition and have attained the highest standard of efficiency, twenty men will take care of it?

Professor MOORE. Yes.

The CHAIRMAN. And that, you think, will represent an annual expenditure of how much—\$25,000?

Professor MOORE. Twenty-five or thirty thousand dollars, including salaries and expense of maintenance.

The CHAIRMAN. Yes; that is what I mean.

Professor MOORE. I am not giving the exact figures now; I am making an offhand estimate.

The CHAIRMAN. I understand.

Professor MOORE. And I do not think it will be very far out of the way.

The CHAIRMAN. Of course that would be varied from time to time by the character of the men you had there?

Professor MOORE. Yes.

The CHAIRMAN. But the nearest you can estimate it is from \$25,000 to \$30,000.

Professor MOORE. Yes.

The CHAIRMAN. Covering salaries and all annual expenditures?

Professor MOORE. Yes.

The CHAIRMAN. In other words, the cost of maintenance?

Professor MOORE. Yes. Just there I would like to attract the attention of the committee to the fact that even though the expense of maintenance of this station be \$30,000 per annum, it is the only one of the many stations of the Weather Service where experimentation is carried on.

The CHAIRMAN. We understand that you do not have any other station like this; that this does a peculiar kind of work which you think is essential to the effective operation of the Weather Bureau. That is your proposition?

Professor MOORE. Yes. We expect that the investigations and researches conducted here will add to the science that is back of our art, and without which we can make no further advance in the accuracy of our forecasts, on which we spend approximately a million and a half dollars each year, to apply to the great commerce and industries of the country.

The CHAIRMAN. You do not expect to have any occasion to duplicate these expenditures anywhere else in the United States?

Professor MOORE. No; not at all.

The CHAIRMAN. This is an establishment peculiar to itself, and develops these various features?

Professor MOORE. Yes.

The CHAIRMAN. Which you will not have any occasion to duplicate, and which you say are really absolutely essential to the proper scientific and useful development of this Bureau?

Professor MOORE. Yes.

The CHAIRMAN. That is your proposition, is it?

Professor MOORE. That is it exactly, sir. We have had many visitors from foreign countries. A great many meteorologists from foreign nations come here to study our system. They are taking a

(Witness: Moore.)

deep interest in the work that we are doing here. No other government has spent anything like the amount of money that our Government has spent in the applying of meteorological science. The United States spends more than all of Europe combined, not only for the applying of meteorological science, but for the applying of the whole range of natural science to its commerce and industries.

The CHAIRMAN. This station is utilized for the experimental development of all of those forces that can be utilized efficiently and effectively in connection with your Bureau?

Professor MOORE. Yes.

The CHAIRMAN. That is the point, is it?

Professor MOORE. Yes; and of course we take pride in our work.

The CHAIRMAN. You can go on along that line a little more fully when we get to the question of the utility of the whole Bureau, with which, of course, that is intimately connected. There is a question right here that occurs to me: You must have, of course, in connection with the Bureau, a library?

Professor MOORE. We have.

The CHAIRMAN. And where is it located?

Professor MOORE. It is located in the headquarters of the Weather Bureau in Washington.

The CHAIRMAN. My attention has been called to the fact that in quite a number of the Departments the libraries, while intended, perhaps, for the specific business of the Departments, have extended to works of literature of quite a variety of kinds, many of which have no earthly connection with the work of the particular bureau. I would like to know what the fact is about your own library.

Professor MOORE. That was the condition of this library twelve years ago. They had works on travel, and works on fiction, and on many lines of thought that were entirely foreign to meteorology. I had the library purged.

The CHAIRMAN. You have shorn the library of all those excrescences?

Professor MOORE. Entirely, and sent them to the Congressional Library or made some other use of them. We have boiled it down now, Mr. Chairman, to about thirty-five or thirty-six thousand volumes that bear specifically upon meteorology or some of the phases of meteorology. And in that connection I will say that it is recognized the world over as the most complete library and the best working library on this subject anywhere in the world; and people come here from all over the world to avail themselves of the opportunities of study and investigation here.

The CHAIRMAN. Is the material that you have in your library duplicated also in the Library of Congress?

Professor MOORE. I doubt that. I am quite certain that we have a great many technical publications and papers extending away back into this science that are probably not in the Library of Congress. I would not want to say that positively, but I think not. If so, we would want duplicates—that is, in other words, a small working library. I do not agree at all with the idea that every little division or small bureau should have an elaborate library. I do not think that is necessary at all. Only the technical working bureaus should have them.

The CHAIRMAN. They ought to have libraries that are large enough for their practical use from day to day?

Professor MOORE. That is right; and we have tried to limit our library to just that purpose. You can see that we only have four people employed in the library; and the librarian is also our supervising examiner and marks all the papers of our people who are examined for promotion.

The CHAIRMAN. Do you need four people there?

Professor MOORE. The four people are the messenger, two clerks, and the librarian. The librarian, as I say, is the supervising examiner, and he is also an expert in solar physics. He will probably be placed at Mount Weather another year. He has been developed for that particular line of work, and when we get one other building that we intend to build at Mount Weather he will go up there and take charge of that.

The CHAIRMAN. I assume that the only persons that have occasion to use this professional and technical library which is maintained for the use of your Bureau are the people in your Bureau?

Professor MOORE. And the scientists who come there to study; that is all.

The CHAIRMAN. That, I suppose, is a negligible factor, is it not?

Professor MOORE. It might be considered so; yes.

The CHAIRMAN. In other words, this is not understood to be a public library, to which the public can resort?

Professor MOORE. Oh, no; oh, no.

The CHAIRMAN. But if people who are educated in your line of work call upon you, as a matter of comity and courtesy you are very glad, of course, to allow them to examine any facilities you may have on that line in the library?

Professor MOORE. Yes.

The CHAIRMAN. Is it necessary to employ four men for the purpose of keeping the library in condition, so that your own men can use it?

Professor MOORE. Oh, certainly; certainly; although, as I have said before, the librarian does a great deal of other work. He or some one under him does a great deal of translating.

The CHAIRMAN. What practical duties do they discharge in connection with the library? Take this messenger, for example.

Professor MOORE. Of course, as in any library, I suppose, a great deal of time is required to properly receive publications and keep up our exchange with foreign nations in regard to scientific reports and publications that are germane to our work.

The CHAIRMAN. Yes; but a library that the public are resorting to is one thing, and a library that is used only by people who are interested in the Department is another—that is, it would seem to me that way. Of course I may be entirely in error about it. For instance, we have our private law libraries. I have no occasion for the use of anyone in connection with my own law library, because I am familiar with the whole of it.

Professor MOORE. But we have to keep up with the literature of these various subjects and keep the books arranged, so that when I want to go in there and find what has been printed on a given topic,

(Witness: Moore.)

the librarian can quickly go to his card catalogue of subjects and determine what has been published and where to find it in his library. That requires some work. But bear in mind that here, with 36,000 volumes, all we have is one man and two assistants, and he is doing all of the examining work of the Weather Bureau. He is very fully employed. He does not have any time in which to loaf.

The CHAIRMAN. In addition to having charge of the library, he does research work?

Professor MOORE. Oh, an immense amount of work.

The CHAIRMAN. For the various officials of the Bureau?

Professor MOORE. Oh, yes.

The CHAIRMAN. Of course that accounts, then, for one feature of it.

Professor MOORE. Yes. I am citing the fact that the amount of service that we give entirely to the care of the library is small. There is a messenger there to take down and clean books and dust and move them about, and two assistants and the librarian—the librarian doing a great deal of other work.

The CHAIRMAN. Is it really necessary to have this messenger?

Professor MOORE. Oh, absolutely.

The CHAIRMAN. Is his time employed?

Professor MOORE. Oh, fully.

The CHAIRMAN. How do the salaries or the rates of compensation of the employees in your department compare with those of private employees engaged in occupations of a like character, if there are any occupations with which that occupation can be legitimately and appropriately compared? I do not know whether that is the fact or not. That is what I want to know.

Professor MOORE. Our salaries are very much less than men of like abilities are getting to-day in outside employment, outside of the Government service. The qualifications we require for a man in charge of a large station or for the work of a section director are such that the same talent out in the commercial world to-day would command a much larger salary.

The CHAIRMAN. How would that talent employ itself in the commercial world in private employment? Is there analogous employment outside, or would it be a general scientific proposition, an employment connected with work that involved scientific knowledge and information and experience?

Professor MOORE. We compare our men largely with the instructors, teachers, and professors in colleges. They get more pay than our employees.

The CHAIRMAN. Do you think that your men are of equal capacity, as a rule, so that that makes the comparison appropriate?

Professor MOORE. Oh, they are of equal capacity with instructors, junior professors, and professors.

The CHAIRMAN. These men in your grades could step right out into these colleges and schools and take instructors' places and professorships and go right on with them?

Professor MOORE. Yes. It is a fact that in many colleges or institutions of learning we have offices, and in some places we get quarters, fuel, and lights for our Weather Bureau office in consideration of the fact that some employee of the station shall deliver lectures in

the university during the college year. In some places our local man is also a professor in the college; has a professorship in addition to his Government appointment.

The CHAIRMAN. Does he get additional compensation as a professor?

Professor MOORE. Not often; sometimes he gets a little. As a rule he gets none if the Government gets something in return for his services; and in some places where the Government does not he may get nothing at all, or he may get a small honorarium in addition to his Weather Bureau salary.

The CHAIRMAN. Then we understand that whatever compensation he receives under those circumstances is practically negligible?

Professor MOORE. It is small. I think the most that any one man receives from a university is \$300. Some of them get \$200; some get \$100; some get nothing.

The CHAIRMAN. What does the \$300 man, for illustration, receive under the Department?

Professor MOORE. His salary was \$1,800. He was the official in charge at Baltimore. He received \$1,800 from the Department. We had fine quarters provided for us in the Johns Hopkins University, down in the city—you know where it is, down in the city there—without expense to the Government; and our official became first an instructor and then a professor. He carried on a regular course of lectures during the college year; and ultimately the university, highly prizing his services, added \$300 to his compensation. That man has since become the director of the upper-air research at Mount Weather and is in charge of the power plant. When we took him away from Baltimore we did so because of his high technical knowledge and the fact that he had made some very important researches; and then we advanced his salary to \$2,000, with quarters and allowances. It is a promotion for merit because of high skill. The university has not yet taken anyone to fill his place. Sometime I think the universities will have professors of meteorology who will be separate and distinct from anybody in the Government service, but up to recent times there was no place to train meteorologists except in the Government service.

The CHAIRMAN. I suppose it has really been a rather unusual and recondite branch of investigation.

Professor MOORE. Yes; but the salaries allowed to men who have the capacity to direct—good executive officials—is anywhere from one-quarter to one-half what it is in outside employment. That seems like a pretty rash statement to make, but I believe it is fully justified by the fact that men in the Government service who are getting \$3,000, \$4,000, or \$5,000 salaries would be getting on the outside from \$10,000 to \$20,000 salaries.

The CHAIRMAN. Does the lecturing these gentlemen do interfere to any serious extent with the service that they render the Government during work hours? That is, does it take any time that detracts from the value of their service to the Government?

Professor MOORE. Our assignments provide that their lectures shall be given outside of the time required for their official work; and the classes are made to meet so that they can fill their appointments without interfering with their official duties.

(Witness: Moore.)

The CHAIRMAN. Out of hours?

Professor MOORE. Out of hours, but not always so. Especially when we get a valuable consideration in return from the university, the man may lecture to his classes during office hours. But those lecture hours will occur at the least busy portion of his day's work.

The CHAIRMAN. Yes; but in that case the Government gets the direct benefit of the lectures thus delivered?

Professor MOORE. Yes.

The CHAIRMAN. So they receive compensation in this matter of furnishing accommodations, etc.?

Professor MOORE. Yes.

Mr. SAMUEL. I asked the question the other day whether you paid anything for the posting of weather reports at the various railway stations.

Professor MOORE. No; we pay nothing.

Mr. SAMUEL. You pay nothing for that?

Professor MOORE. No. We get an enormous amount of voluntary service—an enormous amount. It is surprising how much many citizens will do when they know they are contributing something to the Federal service and are recognized as being concerned in some Federal work.

Mr. SAMUEL. Is the work done by the various postmasters compulsory on their part, or is it optional?

Professor MOORE. It is compulsory, through the Post-Office Department's authority.

The CHAIRMAN. Before you speak in relation to the matter of general utility, Professor, if there is anything in relation to your Bureau that has been suggested to you during the progress of the examination that you feel like explaining further, I would be very glad to have you do so now.

Professor MOORE. I think of nothing, Mr. Chairman.

The CHAIRMAN. Then will you be kind enough to state to the committee, as concretely and concisely as you can, the manner in which the country receives commercial value from a utilitarian standpoint in the promotion of its welfare from any point of view by the annual expenditure of the sum involved in the operation of your Bureau, which aggregates something like \$1,400,000?

Professor MOORE. I would like, in beginning that answer, Mr. Chairman, to read an extract from the law creating the Weather Bureau, which says:

The Chief of the Weather Bureau, under the direction of the Secretary of Agriculture, has charge of the forecasting of weather; the issue of storm warnings; the display of weather and flood signals for the benefit of agriculture, commerce, and navigation; the gauging and reporting of rivers; the maintenance and operation of seacoast telegraph lines, and the collection and transmission of marine intelligence for the benefit of commerce and navigation; the reporting of temperature and rainfall conditions for the cotton interests; the display of frost and cold-wave signals; the distribution of meteorological information in the interests of agriculture and commerce, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States or as are essential for the proper execution of the foregoing duties.

So you see, Mr. Chairman, that the authority conferred upon the Bureau by the act creating it is very broad in regard to everything of a meteorological or climatological nature.

I would like to say in beginning that it is a conservative estimate to place upon the value of the forecasts and warnings of the meteorological service when I state that probably \$30,000,000 annually accrue in benefit to the agriculture, the commerce, and the manufacturing industries of the United States through not only the general forecasts which you see published every morning in the daily paper or which you see on some postal card or on some map or bulletin posted in a conspicuous place, and which has its value to you because it contributes to your convenience and your pleasure, but also because of the warnings of destruction either to life or property that are made by this meteorological institution.

As I have said, it is the largest system in the world. It has the greatest continental area under one complete system of telegraphic survey of any place in the world. It is under one central authority. Therefore its natural location is such as to render it possible to do on this continent meteorologically what it is very difficult to do anywhere else. All Europe would have to combine into one meteorological service and put it under one central control (which they probably never will do) in order to get anything that is comparable with the meteorological service of the United States.

But to come right down specifically to the utilities of the service—

The CHAIRMAN. Explain as concretely as you can how you reach your aggregate estimate of thirty millions.

Professor MOORE. I can not give you any statistical data as to that. That is merely an estimate, and I will have to depend upon a general summing up, such as I will make, to justify that statement.

The CHAIRMAN. Yes.

Professor MOORE. But I will begin by pointing to the great fruit interests of California. They have an annual output in the neighborhood of \$10,000,000. Much of this fruit is dried in the sun. A forecast of rain or a forecast of wind that will fill the open trays with dust has an enormous value to these vineyards. They are nearly all connected with us by telephone.

The CHAIRMAN. Is not that practically a rainless section where the fruit grows?

Professor MOORE. Oh, no; when the fruit is drying there is always danger of rain, and there is always danger of dust.

The CHAIRMAN. This is not so in Fresno, where raisins are picked on such a large scale.

Professor MOORE. It is so in a large portion of the region. These forecasts of rain and of wind do have a great value in enabling them to cure that crop without appreciable loss. Frosts come down into those interior valleys at times. The frost conditions drift down from the North. They do not come in from the ocean. But warnings are made of the coming of frosts that have a great value to the fruit interests, which can not be expressed in dollars and cents, as we have no statistical data on the subject.

Mr. SAMUEL. How long ahead can you forecast with fair accuracy?

Professor MOORE. Sometimes three and sometimes five days, but not so long for frosts.

To continue with my answer, Mr. Chairman: Whenever the barometric pressure on the north Rocky Mountain plateau indicates that an anticyclonic system of air—

(Witness: Moore.)

The CHAIRMAN. Just a moment, now, in relation to the matter of frosts, I assume that it is practicable for these people, if they anticipate the coming of frost, to in some way protect their crops?

Professor MOORE. They can protect their crops largely by smudging. If it is a field in which vegetables or fruits are growing, they can largely protect them, as we have found out by some recent experiments, by freeing the field and the adjacent region of weeds and unnecessary vegetable growth. It is a remarkable thing that one of the best protections from frost that you can give a region is bare ground.

The CHAIRMAN. That is, when there is no vegetation to attract the frost?

Professor MOORE. No vegetation except that which is growing.

The CHAIRMAN. Yes; that which you want to preserve.

Professor MOORE. Yes. You expose the ground then to the full insulation, the full energy of the sun's rays, and you heat it to a high temperature, and you get a storage of heat in the soil.

The CHAIRMAN. The point is that the soil itself absorbs the heat and then throws it out?

Professor MOORE. It absorbs heat during the day; and then the soil is not as good a radiator of heat as the vegetation itself. The vegetation itself will sink to a lower degree of temperature than the soil.

The CHAIRMAN. That is, the surplus vegetation exhausts the heat and throws it off into the air and does not retain it for the protection of the remaining vegetation?

Professor MOORE. Whatever the fact is, the weeded field and the clean field is much less liable to have frost than the field with a dense growth of weeds and other vegetables round about it.

In these regions that we are speaking of there are many methods adopted to gain protection from frost. Probably smudging is the method most universally employed. That forms a cloud of smoke, which reflects back to the earth the heat radiated from the earth and gives protection in that way. There are various methods of making these smudges that I do not need to go into.

The frost warnings probably have as great a utility in the cranberry marshes of Wisconsin as in any place. There the growth of the crop that formerly was a very hazardous thing has now become quite safe, so that large areas that it was formerly not thought profitable to cultivate—whole counties, for instance—are now under cultivation, and the ground is extremely valuable. That is because they have learned that we can give them a forewarning of frost with such a degree of accuracy that by keeping a storage of water in the reservoirs they can, on our warning, flood their marshes and practically gain immunity from destruction by frost, which before often caused them to lose the entire crop.

The value of the cold-wave warning is much greater than the value of the frost warning. The amount of property other than perishable produce that is destroyed by low temperature is very large. There are many articles of manufacture that are injured by low temperatures.

Now, whenever, as I started to say, an anticyclonic system develops up in the north Rocky Mountain plateau that promises to move

(Witness: Moore.)

southward and eastward over these great cereal and fruit-growing plains and onward to the ocean we will, in the space of an hour, by telegraph, by maps, by bulletins, and by telephone, warn pretty nearly every person for a distance of several hundred miles in advance of the oncoming cold, and for a period of from twenty-four to thirty-six hours before the coming of the cold, so that each may adopt the proper methods to protect his own particular industry.

Some years ago I had our observers in 100 of the principal cities go about among their shippers of perishable produce on the morning of the arrival of a cold wave and get estimates as to the saving that had resulted from that one warning. Their estimates, when they were sent in to the central office, totaled \$3,400,000 as a conservative estimate of the amount of property that had been saved by a forewarning of the coming of one destructive cold wave.

The CHAIRMAN. A single warning?

Professor MOORE. A single warning..

Mr. SAMUEL. In how many places?

Professor MOORE. From 100 of the principal cities; that was an imperfect return. I estimate the annual value of cold-wave and frost warnings to affected industries at not less than \$10,000,000.

The warnings of marine disaster have even a greater utility. Marine insurance people, who have to settle for all loss of property on the water, have estimated that one West India hurricane (of which we get anywhere from two to five each year), sweeping along our Atlantic seaboard, would leave anywhere from three to four million dollars' worth of wreckage, each one of them, without forewarnings.

The CHAIRMAN. That is, unanticipated?

Professor MOORE. Unanticipated, without forewarnings, and without considering at all the loss of life, which is even more important. We can not reach all the vessels with our warnings. There are many that are too far out at sea. But as an illustration:

The great Galveston hurricane was seen and detected eight days before it reached Galveston. We noticed it first west of the island of Barbados, in the eastern part of the Caribbean Sea. You may say, "How did you know that that storm was down there in the eastern part of the Caribbean Sea?" We knew it was there because of the direction and velocity of the wind as it blew over the island of Barbados, coming from the east or southeast. We knew there was a central suction in that ocean, because the wind blew up from the south at our stations along on the north coast of South America.

The CHAIRMAN. Do you extend outside the territory of the United States?

Professor MOORE. Oh, yes; we have a lot of stations all around the islands of the West Indies and the north coast of South America. We knew the storm was in there, because there was some central point of suction that was drawing the air toward it, and we could see the air flowing over our various island and coast stations.

The CHAIRMAN. That is, that indicated an unusual and extraordinary disturbance?

Professor MOORE. Yes. The air was flowing spirally inward toward this central rotating eddy, and, getting near the center, rising, going up spirally, like that [indicating]. Now, then, we were able to track that storm through the Caribbean Sea until it came into the

(Witness: Moore.)

island of Cuba and passed right up over Havana. So far it had not been a destructive storm, but was just simply a storm of moderate energy. We tracked it until it got up to Florida—until it passed Key West. From Key West its normal track would have been to recurve and go off to the northeast, along the line of the Gulf Stream.

The CHAIRMAN. What would have deflected it?

Professor MOORE. But it was deflected by a heavy mass—

The CHAIRMAN. But what would have deflected it? You say, naturally it would have gone off to the northeast. What would have been the cause of that deflection?

Professor MOORE. I am going to tell you. It was deflected by the only thing that could turn it. That was a heavy mass of dry air lying right in front of it, covering the whole South Atlantic Ocean from Bermuda westward to the Carolinas, Georgia, Alabama, and clear over to the Mississippi River.

Now, one of these rotating West India hurricanes, composed of humid, light air—humid air, bear in mind, is light, not heavy; it is the clear air that is heavy—such a body of rotating air can not burrow through a mass of heavy dry air, but must go around it. Therefore this West India hurricane, in order to follow the usual track that hurricanes follow when they get to latitude 26—

The CHAIRMAN. That is to say, those two qualities of air will not mix rapidly? I suppose in time they will combine?

Professor MOORE. I would not want to describe it exactly in that way. The cyclonic system will not burrow through the anticyclonic, and the anticyclonic is the clear and dry air. So this storm was deflected and shunted, as you might describe it, into the Gulf of Mexico.

Our experts—and I was in consultation in this matter myself—concluded that the storm would be compelled to go over toward the Galveston coast before it could get up northward. Therefore the warnings were sent into the Gulf of Mexico; and at every port on the Gulf; and all up as far north as Cape Hatteras they had been advised every day of the slow progress of this storm, but told to “go ahead; whenever it gets dangerous we will let you know.” When it got to Florida they were intently waiting to know whether we would put up the danger signals; and when it got there we did put up the danger signals all the way around to Galveston—the hurricane signals.

The CHAIRMAN. You followed the Gulf right around.

Professor MOORE. Now, for fear that that storm would not obey our programme, we did carry the hurricane signals northward on the Atlantic coast to Cape Hatteras, until we could get special observations, four hours later, through that storm area, and determine whether it was going to follow our schedule. The observations four hours later showed that it had started into the Gulf. Then we immediately ordered the signals down on the Atlantic coast, and said: “The storm has gone into the Gulf, and you may pursue your way with confidence.”

That was two days before it reached the Galveston coast. They had ample warning of the storm. We could not say to them, “This storm is going to come with its center right over Galveston, and is going to submerge Galveston.” But we did notify them to have

(Witness: Moore.)

nothing leave port. We notified all the ports on the Gulf, "Have everything that is going out stay in, and everything that comes in stay in." The result was that before that storm went through the Gulf we had practically swept that great inland sea free of both sailing and steam craft; and if you will remember, as the result of that warning, there was not a life lost on the open water.

The disaster to Galveston was not very much, if at all, minimized by the warning; but the disaster on the open sea was very greatly reduced—reduced to almost nothing.

The case of the Galveston storm is simply one illustration of the utility of these marine warnings.

The CHAIRMAN. The Galveston disaster was a thing you could not anticipate, and neither could they, because that was a pronounced disturbance of the ocean as the result of this extraordinary atmospheric manifestation?

Professor MOORE. Yes. The next day though, the day that the storm came—the storm struck there about three o'clock; it began to get severe along in the afternoon—our local official, observing the character of the swell that came in, did this: You must bear in mind that the ocean swell will be propagated outward from the center of one of these rotating hurricanes faster than the storm moves down in the Tropics. Farther north the storm moves too fast for that, but down in the Tropics the ocean swell will be propagated outward from the center of the cyclonic storm faster than the storm advances. So our local official noted the swell that came in; he noted its amplitude; and already having the hurricane signals at the station, and knowing that a hurricane was in the ocean, he divined that this island would go under water, and he was largely instrumental in moving several thousand people from the lowlands to the higher ground of Galveston. So that there was even a saving of life made there.

Now, we will take the recent storm that created such devastation between Mobile and Pensacola. When that storm got up along about Key West—

The CHAIRMAN. That was when twenty-five or thirty vessels were wrecked down there?

Professor MOORE. Yes, sir; not long ago—this year. There, again, we had a peculiar distribution of pressure which would allow that storm to come northward somewhere between Pensacola and Mobile, and so our warnings the day before gave the location of this storm, and said: "The distribution of the barometric pressure is such that this storm must strike the coast somewhere between Mobile and Pensacola," which was precisely the region it did strike.

Again, there was no loss of life in the open water. Everything was off of the ocean. Thousands of craft failed to sail the day before because of that warning.

I could give you such illustrations by the hundred; not any, probably, that would show quite as great disaster as the Galveston and Mobile storms, but some that would show disaster. An incident that will probably recall itself to your minds is the *Portland* disaster. We did our best on that occasion to prevent ships from sailing. The harbors of New England were filled.

The CHAIRMAN. I think it appeared that the persons in charge of

(Witness: Moore.)

that vessel had notice of the storm, but did not seem to think they saw anything that indicated it.

Professor MOORE. They not only had notice of the storm, but our local official, Mr. Smith, went on the boat and protested against the *Portland* leaving port.

The CHAIRMAN. In Boston?

Professor MOORE. In Boston; and we had great difficulty in preventing the companion ship from sailing from the city of Portland southward, which we finally did succeed in doing. That was because we saw the storm lying over the lake region. I remember looking at it critically myself, and I said to the forecast officer: "You must bear in mind that this storm is not only going to give tremendous wind, but it is going to give a blinding snow with it. Now, we must make our warnings specific, and we must protest against anything leaving port."

The result was that nothing left port except the *Portland*, and 150 souls went down to a watery grave because of the stubbornness of an old-time vessel master, who refused to recognize that science could tell him something about the winds that he did not know.

The CHAIRMAN. He did not happen to see anything in Boston Bay or the surroundings, so far as he could see, that indicated to him that there was any trouble?

Professor MOORE. No. Of course his atmosphere was perfectly clear, but the beginning of the storm was then within a few hundred miles of him.

The CHAIRMAN. Yes.

Mr. SAMUEL. You have no authority to compel the masters of vessels to heed your warnings?

The CHAIRMAN. Oh, no; they have no power to stop them.

Professor MOORE. No. Now, of course, the great ocean liners do not need to stop in that way; they will go through any storm of which we have any knowledge.

The CHAIRMAN. In order to make their schedules they practically have to?

Professor MOORE. Yes; and they are strong enough to stand these storms. But the ordinary coastwise steamer can not stand them, and the majority of craft can not stand these terrific convulsions of nature, and they should stay in port.

The CHAIRMAN. I want to make an inquiry right here: What has been the experience of your Department, or of your Bureau, with reference to injuries by storms or dangers from storms upon the Atlantic coast, comparing the southern coast with the northern coast? Which, if either, is the more dangerous?

Professor MOORE. There is no doubt in my mind that our Atlantic coast, along New Jersey and southward to Cape Hatteras, is in nearly as great danger as any of the Gulf ports.

The CHAIRMAN. What would you say was the most dangerous zone?

Professor MOORE. Of course, we all know Cape Hatteras, because it projects so far out into the ocean—

The CHAIRMAN. Beginning at Old Point Comfort and going north, and comparing that with the part of the coast beginning at Old Point Comfort and going south to the Rio Grande, if there is

any distinction between the two as to danger, which would be the more dangerous?

Professor MOORE. As you sail southward there is no doubt that the danger increases from Chesapeake Bay southward to Key West, and it grows greater and greater in the open water as you go southward from the Chesapeake, because the number of West India storms is greater.

The CHAIRMAN. Which is the more dangerous coast—going north from Hampton Roads or south?

Professor MOORE. South. I will have to modify that—south, if it is in the period of West India hurricanes. Going north you will get several times as many storms as you will get on the south coast, but few that are destructive, while you will get a less number going on the southern coast, but nearly every one of them is a dangerous storm. That is a better way in which to answer that question.

Of course, nearly all storms coming both from the southwest and the west converge over New England. Take the average storm tracks: Here, let us say, is the United States, and here is the New England coast. The storms forming in the southwest move up like that [indicating]. Those forming here in the north Rocky Mountain plateau move like this [indicating]. Those forming in the middle Rocky Mountain plateau move like this [indicating]. But nearly all of them leave our continent somewhere in the region of or right over New England. There is no question that the New England States have a much greater wind velocity, much greater activity of air, than any other part of the United States. All of the meteorological elements do practically converge over that region.

The CHAIRMAN. Taking into account the configuration of the coast and its rocky character, it would make that a pretty dangerous coast?

Professor MOORE. Yes; a pretty dangerous coast.

The CHAIRMAN. Perhaps the most dangerous of any of equal length in the country?

Professor MOORE. Well, there is no great commerce between Eastport, for instance, and northward on the coast, is there? It is rather a local commerce?

The CHAIRMAN. Yes; but that does not affect the character of the coast so far as danger is concerned?

Professor MOORE. No; but it affects the amount of destruction that may result.

The CHAIRMAN. Yes; I am speaking simply of the natural dangers.

Professor MOORE. Yes.

Now, then, I have given some idea of the value of the marine warnings, and I will say this: In the past ten or fifteen years there has been no case of a marine disaster of any importance that has not occurred with the danger signals up. I will put it in this way: There has been none that has occurred without the Weather Bureau having given warning of the storm. Once in a while we get the signals up and the storm does not come, or it is a little late. But, as a rule, we would rather err on the side of holding the craft in when there is danger. To be sure, if we should put up too many signals and stop the commerce that we do stop when we put our signals up, and should

(Witness: Moore.)

stop it too often without storms coming along, it would be said, "Why, here you are interfering with business," and they would lose confidence in the signals.

But that condition has not arisen. While it requires the exercise of a great deal of judgment and empirical reasoning on the part of forecasters not to put up too many signals, not to stop commerce unless they are reasonably certain a storm is coming, yet to be sure, if a storm does come, and the signals are not there, we are going to get badly criticised. So there is that temptation to hold up commerce with too many warnings; but so far we have not been criticised especially on that line, and very few signals have been put up that have not been verified.

The CHAIRMAN. In cases of doubt your inclination is to err toward the protection of life and property?

Professor MOORE. In case of doubt of a severe storm we would rather hold the vessels in port, as we did here on the south Atlantic in the case of the Galveston storm, when we were not quite sure it would not go up the south Atlantic coast. Storm warnings on our Great Lakes and seaboard annually result in a saving of at least \$10,000,000, without considering the great saving of human lives.

I think probably one of the most useful lines of work is the Bureau's flood-warning system. We can determine the height of the gauge reading anywhere in the Mississippi River and its big tributaries, on up the Ohio to Pittsburg, and even in many of the smaller streams, from three to seven days in advance, to within a few inches. Many times we call the height, right to the very inch, a week in advance at an important place on the river, as we did in the great flood that inundated much of St. Louis several years ago. We called the height of the water there five days in advance exactly to the inch.

The amount of property that can be moved from a city or from a great, rich, agricultural bottom land by such a warning is almost beyond computation. Take, as an illustration, the great Yazoo cotton bottom, one of the richest cotton regions in the world, about 200 by 50 miles. From five to seven days before that went under water we telegraphed extensively the warnings through there that this entire region would be flooded. We said to the people: "Move all your live stock and everything that is movable out of this valley." They had time to get everything out of that valley. I had protests come to me saying: "You are frightening our people to death. They are neglecting their business; they are abandoning everything, and they are just fleeing. We do not think it is necessary." They wanted me to recall those warnings. I said: "No; that is our business to give warning, to sound the alarm if we really believe a flood is coming." Of course the flood came; and I have heard estimates made to the effect that there were not a hundred head of live stock drowned in that valley, although the census preceding showed \$7,000,000 worth of live stock alone in the region.

The CHAIRMAN. Not a hundred head were drowned?

Professor MOORE. Not a hundred head were drowned.

Let us go down to New Orleans itself. Just about the time of the great flood of 1897 our Bureau, for the first time in its history, had segregated the data as to the rainfall that had created all of the great floods of recent years in these interior valleys, and was able, for the

(Witness: Moore.)

first time in history, to determine the actual source of each and every flood. In this case we believed that we could see enough water lying on the watersheds ungathered in the tributaries, combined with the existing height of the main streams, to put the city of New Orleans under water. We believed that the levees would be topped by at least 2 feet, and we telegraphed such a warning. There was a considerable protest when we sent that warning to our local men, not for general publication, but for quiet warning among the people who had control of the levees. We did not want to stampede the people and unnecessarily frighten them. Finally the proper authorities took the matter in hand, and went to work heroically, and inside of the time that we specified they had raised the levees more than 2 feet. Precisely on the day we named, within a few hours of our time limit, the water touched the 2-foot limit over the old levees.

The CHAIRMAN. Is that so?

Professor MOORE. Yes, sir.

In 1901 there came another threatening condition. The river had been still further leveed up, cutting out a number of areas that had before taken up a great deal of the flood water and held it back; and it was then a pretty hard problem for us to work out as to how much water the region that had then been leveed up would take if left open—how much water this region that was then protected by levees from floods would hold back during the expected flood if left open to receive the water. We had no way of figuring it mathematically; it was purely an empirical problem. But again it was our estimate that these new levees that had then been raised 2 feet would go under water to the height of probably 1 foot. Again we asked that they raise the levees, and raise them promptly, inside of five days. They were raised; and the water came within 1 inch of the gauge reading that we had anticipated. In both cases that city would have been flooded; and you can hardly imagine the disaster that would have come to that great southern metropolis without this forewarning.

The CHAIRMAN. Those two instances were within the last few years?

Professor MOORE. Since 1897—in 1897 and 1901.

The CHAIRMAN. Practically in the last ten years.

Professor MOORE. A few years ago the city of St. Louis had a great flood. There the warning of the flood in advance enabled nearly all the people in the region that was liable to be submerged to move, and move their property; and the gauge reading there touched precisely the inch that we forecasted.

There are eighteen river centers. Each river forecaster gets a number of river and rainfall reports from observers who receive 20 cents a day or more.

The CHAIRMAN. That is the matter about which you spoke here?

Professor MOORE. Yes. The local forecasters get, in great detail, the rainfall data and the gauge readings of the streams farther up; and from the history of past floods, and the history of past precipitations on a given area, they know empirically just about what the gauge reading will be in that river at a certain time at the stations farther and farther down. That problem has been worked out and studied very diligently by the men in charge of these various districts. We put a man there, and he can study that district until

(Witness: Moore.)

he knows it by heart; and we do not often change him unless we have to. When a man learns his river district his warnings are worth many millions to his vicinity.

I could bring you a number of editorials from Pittsburg papers, and a number from the New Orleans papers, and a number from the Portland papers, that I have in the past few years copied into my annual reports, and which you will find printed in my reports.

The CHAIRMAN. Do you mean Portland, Oreg.?

Professor MOORE. Yes; saying that the warnings of the Bureau in regard to this flood or in regard to that marine storm "have saved to our people alone many times the cost of the entire weather service for a year." Many times we have had such expressions. We could bring them to you by the hundreds. We do not need to do that.

These river stages have a very great economic value beyond the forecast of floods. During the low stages of the rivers, such rivers as still transport considerable freight, like the Ohio in shipping coal southward, must load their boats in accordance with the low-stage readings, or send them out or hold them back in accordance with the gauge readings farther down the river; so that the stages of low water have a great economic value.

Within recent years the Agricultural Committee has authorized us to extend our flood system to a great many small rivers that before had no flood service, because of the great success that has attended our work on the Tennessee, the Cumberland, the Ohio, the Mississippi, the Missouri, the Arkansas, the Red, and all those rivers; so that now the river service covers a great many rivers that before were not included in the list. The committee has treated us very liberally in extending this flood service, as they believe it has a very great utility.

The CHAIRMAN. You suggest the rivers, and they give you the lump sums that are necessary to cover the projects?

Professor MOORE. Yes. This river service does not cost very much.

The CHAIRMAN. But that is the method of doing the business?

Professor MOORE. Yes.

The CHAIRMAN. The appropriation bills would not disclose the particular rivers covered by that service?

Professor MOORE. No.

The CHAIRMAN. Because that is a matter that you work out in detail from the lump-sum appropriations?

Professor MOORE. No; our charts do show it for any one of the committee who wants to look into it, as they do occasionally. Our flood warnings and daily river stage predictions result in a saving of more than \$5,000,000 worth of property each year.

I want to speak a little further in regard to the frost forecasts. From Norfolk southward to Florida the frost forecasts are made with a much higher degree of accuracy than they can be made in any other part of the United States, because we are able to measure and quite accurately diagnose the anticyclonic conditions that for one, two, or three days previously have been developing in the West and Northwest, and moving down toward this region. By the time they get to the South Atlantic coast, where they are liable to cause frost, we have already become thoroughly familiar with their characteristics; and our frost warnings for the South Atlantic and Gulf States are made with such a high degree of accuracy that I can say that the

(Witnesses: Zappone, Moore.)

people almost time their watches by them. There is not a Representative from any one of those truck-growing regions that does not see to it that every post-office in his district gets these frost warnings, and gets them promptly.

Mr. ZAPPONE. Professor Moore, do not your temperature warnings result in a great saving to the railroads in the shipment of perishable articles?

Professor MOORE. Oh, yes.

Mr. ZAPPONE. You have not touched upon that yet.

The CHAIRMAN. Do you refer to the frost warnings?

Mr. ZAPPONE. Not the frost warnings; he will explain.

Professor MOORE. All the transcontinental railroad lines, as well as others, but especially the transcontinental lines, are in telegraphic communication with our various forecasting officials; and they move freight, stop and sidetrack cars, and unload perishable freight on our warnings of cold waves. We have many communications from the railroad people indicating the millions of dollars that they save annually by taking advantage of the cold-wave warnings. Then they take advantage of the cold-wave warnings in the loading of their engines. They take advantage of them in regard to the direction and velocity and force of the wind in regard to making time.

The CHAIRMAN. You say, "in loading their engines;" do you mean as regards additional cars?

Professor MOORE. Additional cars; yes.

The CHAIRMAN. That is, one condition of the temperature would justify a certain load and another condition another load?

Professor MOORE. Precisely.

The CHAIRMAN. And they accommodate themselves to those atmospheric conditions as you advise them of their existence?

Professor MOORE. Precisely.

Mr. ZAPPONE. Also the refrigerator cars. Will you mention those?

Professor MOORE. Yes. Then, in the summer, we make a special forecast for the big packing houses as to the highest and lowest temperatures that a given car will encounter during its course through to its destination. Formerly they would have to charge with ice against the highest expected temperature. Now we enable them to send train load after train load through with practically no icing, because we can say, "You can not get an unsafe temperature through the entire route that car is going to travel within the time it will be under way;" or, "You will have only such a temperature, and you will need but a small amount of ice;" or, "You are going to have high temperature, and you will need to ice thoroughly and probably twice." I am most conservative when I state that our daily forecasts of weather and temperature changes save annually to householders, farmers, manufacturers, shippers, and others at least \$5,000,000.

The CHAIRMAN. Do you distribute those reports to these particular houses?

Professor MOORE. They go directly to them. They are not published.

The CHAIRMAN. That comes pretty near rendering private service. does it not?

Professor MOORE. Yes; it comes pretty near being private service,

(Witness: Moore.)

but anybody that asks for it can get it, you see. There is nothing secret about it.

The CHAIRMAN. Still, it is utility?

Professor MOORE. Yes. Then I might say (while this is not one of the features of utility) that the price of cereals is often largely controlled by the rainfall on a parched wheat-growing or corn-growing region, or by the coming of frost on the corn fields or wheat fields, etc.

The CHAIRMAN. That is the ultimate result, is it not?

Professor MOORE. Yes.

The CHAIRMAN. How does your investigation or examination—

Professor MOORE. Oh, the immediate result will be shown in the price of the cereals.

The CHAIRMAN. What you mean is that as soon as you disclose the conditions that exist in those localities that affects the price of that particular product throughout the country?

Professor MOORE. Yes; or as soon as we make a forecast that there will be a frost or a rain on a given area. I do not know that you would call that a utility.

The CHAIRMAN. It is information, at any rate.

Professor MOORE. Now, I want to speak, finally, of the uses of meteorological data—not the uses of weather forecasts, but the uses of meteorological data.

The CHAIRMAN. Other than those you have already described?

Professor MOORE. Other than those I have already described.

First, we have one division in the central office with from twelve to eighteen people employed in it, varying in point of number, who are concerned in the examining of the data that come in from the various stations and in answering inquiries from the various industries of the country. We receive inquiries from persons who want to know what the weather was at a certain time, who want to know how the climate of this county compares with the climate in some other county with which they are familiar; from thousands of people who are concerned in the purchasing of land in some part of the country with which they are not familiar and from which they have received glowing accounts. They want to know what is the truth with regard to that particular region, and we give it to them. Then these climatological data enter into cases at law and often constitute the determining evidence in very many important cases at law.

The CHAIRMAN. Climatological or meteorological?

Professor MOORE. Climatological. There is a pretty close distinction between the two terms.

As an illustration: A Milwaukee concern had a contract, away back in 1890, for a certain peculiar kind of timber to be gotten out from the region of Cairo and shipped to Milwaukee for the making of boxes. The timber did not arrive. The Milwaukee concern went into the open market and bought its timber and charged the difference in price to the Cairo people. The Cairo people finally put in a claim, ten years afterwards, and they set up as a defense that it had been so wet and rainy around about their region that they could not get out the timber from the woods; that horses and wagons could not get into the woods at all, and therefore it was an act of God; that

they had done their best to meet the conditions of their contract, but the unusual meteorological conditions prevented them from carrying out their contract, and therefore they were not responsible.

I went on the stand and took the records for the region round about Cairo for the ten years before and showed that there had not been enough rain there for the period of two months preceding the time they should have gotten out this timber to have laid the dust. That decided the case against them right there.

The CHAIRMAN. Did the court allow you to testify to the results of the observations of the Bureau from your own personal knowledge in that way?

Professor MOORE. Yes; that is always contested in the courts.

The CHAIRMAN. On the basis of their being public records?

Professor MOORE. The opposition to the records always takes the ground: "Why, you did not make these records; you are not personally familiar with them."

The CHAIRMAN. "You have no personal knowledge of the facts?"

Professor MOORE. I always say: "I have no personal knowledge; I am simply the custodian of the records." But there is a decision by the Supreme Court—I have forgotten the citation now—

The CHAIRMAN. The courts hold that your statement of the facts, under those circumstances, is competent testimony?

Professor MOORE. Yes; they do.

As an illustration: I had a unique experience once in Chicago—

The CHAIRMAN. Is the time of the Bureau officials occupied to any appreciable extent in testifying under those circumstances?

Professor MOORE. Why, I could not say how many times each day our records enter into the various courts of the United States, but I think it would average twenty times a day.

The CHAIRMAN. Is the presence of some official of the Bureau required to authenticate them?

Professor MOORE. Usually the local official is subpoenaed, and he appears with the records, or they write to this office, and I certify to the accuracy of the records, and the Secretary of Agriculture certifies that I am the proper officer, and puts the seal of the Department on the paper, and that is admitted in any court at law. I certify to a number of those papers nearly every day.

The CHAIRMAN. So that it is possible for private parties, if they have occasion to use this information, to have it produced in court without the presence of any official of the Bureau?

Professor MOORE. Yes.

The CHAIRMAN. Do they pay the Government anything for compiling these records and for this certification?

Professor MOORE. No; we charge nothing for it. The local official, if he is summoned to the stand, gets the ordinary witness fee—a small fee. If he is asked to testify as an expert—to make deductions based on his knowledge as an expert—we allow him to receive any reasonable compensation for his services.

The CHAIRMAN. He gets whatever the court allows an expert under those circumstances?

Professor MOORE. Yes. I have myself, before I came to the head of the Bureau, been an expert witness in a great many cases at law where the weather was the principal evidence that was admitted. In

(Witness: Moore.)

fact, I once saw a divorce case largely influenced by the weather record, and I was once on the stand in a case where a murderer was hung by the weather record.

In the divorce case, briefly stated, the husband had two detectives swear that they saw the woman in a house of assignation. The house was well known. Its character was well known to be that of a bad house, and these detectives swore to what I am about to state as having occurred at 7 o'clock on a certain January morning. They said that although it was January it was so warm and pleasant that they had taken a walk out before breakfast, and they knew it was 7 o'clock because they had timed their watches, and they saw the men going by with their dinner buckets in their hands. And sauntering along, taking a walk on this warm, balmy morning in January, they came to a point where they could see a window that opened east into a garden from this house of ill repute, and there came to the window this woman, the defendant, dressed only in her night robe, with her hair hanging down her back. She parted the lace curtains, and she looked out into the garden and stood there for fully five minutes looking out in the garden, and while there they caught sight of the correspondent moving by, with his trousers and shirt on and his suspenders hanging over his hips.

That was their testimony. The case was tried at St. Louis. The scene was laid in Chicago. I saw the importance of the Weather Bureau record, and it interested me so that I went all the way down to St. Louis, just because I wanted to put in those records and catch those two detectives who were perjuring themselves. I introduced the records, and they showed that at 7 o'clock on this "warm, balmy morning" the wind was blowing from the east into that window that opened east; it was blowing at the rate of 50 miles per hour; and a perfect torrent of rain was falling, and had been falling for hours. The harbor was filled with vessels that had been brought in by our warnings of the night before; and one of the worst storms Chicago had ever known was raging over that city at that time, and had been for hours, and continued for hours after. And of course the woman did not stand there in her nightdress, looking out into the garden; and these detectives were not sauntering down the street getting the "warm, balmy air."

The CHAIRMAN. It did not appear that they carried umbrellas?

Professor MOORE. No. That testimony, I believe, cleared the woman. It turned the case.

I could cite such cases indefinitely. Of course the most numerous cases that come in are to determine such questions as this: Was the rainfall unusual? Was the wind velocity something that could not be provided against? Those questions arise in suits for damages, you see.

I would like to say that these meteorological data are largely used by people traveling for pleasure, and especially those looking to change their residences for purposes of health. The therapeutics of the air, of course, is coming to be almost a science by itself to-day; and medical practitioners are realizing that patients may get more benefit for a large number of the diseases to which the human flesh is heir by putting themselves under proper hygienic atmospheric conditions than by drugging themselves.

The CHAIRMAN. That is true especially of the pulmonary diseases, I suppose?

Professor MOORE. Yes; and so they rely largely on our records to advise their patients as to where to go, and what the conditions are in the various parts of the United States. In getting the climatology of the United States we have nearly 4,000 cooperative observers whom we equip with suitable instruments and shelters, and who take daily readings, each in his particular locality, of the highest and lowest temperatures, and the rainfall. Each cooperative observer reports his readings at the end of each month to the section center of each State, and that section center digests these data and publishes a bulletin showing all the detail of the climate of the State for that month. There is a section center for each State, except that New England is all taken in as one section; and at the end of the year this section director digests all the data of the year, and publishes a summary of the climatological data for every portion of the State for the year.

Each section center exchanges reports with each other section center, so that you may enter any one of the section centers of the Weather Service of the United States and get all the details of the climate of practically any part of the United States.

The CHAIRMAN. Is this original material that you thus collect in connection with the work of your Bureau as the basis of all these reports permanently preserved in some fireproof manner and indexed and tabulated so it can be readily reached for use?

Professor MOORE. Yes; copies are kept in iron fireproof vaults in the basement of the Weather Bureau building here in Washington.

The CHAIRMAN. So that all of that original material is accessible at any time?

Professor MOORE. Yes, sir.

The CHAIRMAN. And is properly preserved, so that the results of the work can be reached at any time?

Professor MOORE. Yes, sir.

Mr. SAMUEL. Has the Department ever issued a bulletin giving the section of the country most beneficial to certain diseases?

Professor MOORE. No; we have not done that.

Mr. SAMUEL. Would it not be a good plan?

Professor MOORE. We have issued bulletins showing the character of the climate for the various sections, and we have left it, of course, to the medical practitioner to say to his patient, "You want this kind of climate," and the Weather Bureau says "You will find it here; so go here."

The CHAIRMAN. You give them the facts, and upon those facts they predicate their medical conclusions?

Professor MOORE. Yes; exactly.

I might say a word, possibly, in regard to the forecasting of tornadoes, because we issued the forecasts that caused the superintendent of schools to close the schools of St. Louis prior to the St. Louis tornado. You might say that that was a good piece of work. In its ultimate effect I doubt it, because the same warning was sent into every town of the State of Missouri for the reason that the whole State of Missouri was under a stratum of air that had sufficient heat and humidity to produce tornadoes. We could not tell which towns,

(Witness: Moore.)

which counties, which townships, which villages, which cities would be struck, but we knew that tornadoes would occur, a number of them, in that State, and so the warning went into all of the State. But the fact is that really nine tornadoes occurred that afternoon. You only heard of the one that struck St. Louis, but nine occurred. They all moved from the southwest toward the northeast. They scratched but an inconsiderable portion of the area of that great State, and we had frightened the people of the entire State. I received so many letters from people who were injured by the fright, especially delicate women, that I came to the conclusion that possibly we had killed as many people with our warnings outside of St. Louis as we saved in St. Louis.

The CHAIRMAN. In the language of Mr. Matalini, the "demnition total" was not necessarily to the credit of the Bureau?

Professor MOORE. No. So, as a result of that we adopted the practice of being more conservative in our forecasts when we anticipate tornadoes. We do not use the term "tornado" any longer. We say, "Conditions are favorable for severe thunderstorms." We stop there, because every tornado is accompanied by thunderstorms, and a tornado is probably nothing more or less than a thunderstorm stood on end. In a thunderstorm the air is rotating about a horizontal axis, like this [indicating]. Coming toward you it rotates. In a tornado the axis is vertical.

The CHAIRMAN. That is, a thunderstorm is a vertical tornado?

Professor MOORE. No; the reverse. In the thunderstorm there will probably be little or no difference in temperature between the two ends of the horizontal rotating column. But turn it vertically and there is a vast difference in temperature between the bottom and the top. There is your energy between the two extremes. So that we predict thunderstorms for a region that we anticipate may have tornadoes; and we do so for the further reason that there will be such a small region struck by the tornado.

We can foresee hot waves sometimes and predict hot spells for five or six or seven days in advance. The hot wave, of course, is the result of a heavy mass of air collecting in the summer down over the South Atlantic—the same kind of a mass of air collecting there that shunts the West India storms over into the Gulf; and it pushes the air slowly from the southeast up toward the northwest. There is a slow movement of the air, hugging the surface of the earth. The air is, in the main, in contact with the earth; and so, when you get southeast or easterly winds, which hug closer to the earth, they soon take up the heat from the surface and become very highly heated. When that air gets into the region of a general storm center it will begin to rise. Now, the westerly air, which is always cool and invigorating and pure, is always flowing with a downward component of motion. Therefore it is bringing down the pure air, with less dust, with less disease bacteria, with less humidity, and with a much higher electrical potential, because we know that there is a tremendous potential up in the upper air. It is that energy that Tesla says he is going to utilize some time and get great power from it. I do not know how he is going to get up there to get it, but if he gets there he will get it.

The CHAIRMAN. We are willing that he should if he can.

(Witness: Moore.)

Professor MOORE. The hot wave, as I say, is the result of a heavy mass of air lying over the South Atlantic, driving slowly the southerly winds up toward the Northwest, keeping close to the surface of the earth, and gaining heat and dust and disease bacteria. I am of the opinion that many more people die under the influence of the southeast wind than of the northwest.

The CHAIRMAN. So that you can forecast the hot wave some days in advance?

Professor MOORE. Some days in advance, and usually we can get an estimate as to the period during which it will continue.

The CHAIRMAN. Has your science reached such a degree of development that you are able to forecast with any reasonable certainty as to the general condition of a season, for instance?

Professor MOORE. No.

The CHAIRMAN. You would not be able to make a forecast that the next summer would be a warm or a cool summer?

Professor MOORE. No. No one can predict the character of a season, except a charlatan. He will predict it, and sell you his prediction, and there are lots of such fakirs to-day.

The CHAIRMAN. Brother Shipman has been doing work of that kind.

Mr. SAMUEL. Are such people employed in the Bureau?

Professor MOORE. No; they are not employed in the Bureau. I have hard work to keep them out of the Bureau, because they go around claiming that they have some association with the Bureau, and sell their spurious stuff. But there is nothing in their predictions. There is no scientific man in the world to-day that will attempt to tell you what the weather is going to be for a season in advance. We do hope, within the course of time, to be able to predict the weather for several weeks in advance. To-day we can often see five, perhaps ten days in advance. We are not to-day predicting regularly for that period in advance; we are experimenting among ourselves with it. But as an illustration of that kind, I will show you what we have done:

We have succeeded, in the past few months, as the result of several years of negotiation, in getting cooperation on the part of practically all foreign nations, so to-day, for the study of our forecast officers in the forecast division of the Weather Bureau, you can see every morning, by 10 o'clock, a chart of the weather around the world in Northern Hemisphere. It contains reports from Hawaii in the Pacific, from our own country, from the West Indies, the Bermudas, the Azores, from Iceland (as the result of the cable that recently connected that island with Europe), from the west coast of Europe, from Russia and Siberia. We get a certain number of reports, such as we have provided for, here at Washington; we pay the expenses of getting them, and we are able to make a chart that practically shows the distribution of the pressure of air around the whole Northern Hemisphere. We are separated from the Southern Hemisphere by the heat of the equator, so there is no connection at all between the storms of the two regions.

The CHAIRMAN. That is a complete differentiation between the two sections?

(Witness: Moore.)

Professor MOORE. Yes. Now, this information is of value in this way. I will give you an illustration:

In the latter part of December and the first part of January we found that the pressure of the Northern Hemisphere had settled down and existed in a superabundance along about latitude 30, and there was a belt of heavy air, something like 15° wide, extending clear around the Northern Hemisphere. That belt of heavy air, we estimated, would prevent the storms moving across the United States from moving across on a southerly latitude. It would compel them to move along more northerly latitudes, skirting the northern boundary of the United States. That would draw up the southerly winds and prevent the coming of any severe cold, and the storms would move rapidly.

That is what has occurred. We have had, you see, abnormal heat clear up to the 10th of this month. The condition now is changing somewhat. This extensive chart of the Northern Hemisphere is one of the greatest additions we have ever made to our work. It is an aid to our forecasters in foreseeing the general character of the weather for a week in advance, say, or ten days in advance.

So that the service is growing slowly.

The CHAIRMAN. You have it now so that it is practically international in its character?

Professor MOORE. Yes. Of course we could step out and make long predictions, a month or a season in advance, the same as these other people do who have no scientific principles back of their predictions, but the Government can not afford to engage in any such work. It can only afford to make a prediction when it really has some definite basis for the prediction. We hope, with this daily international chart and with the experimentation that is being conducted at Mount Weather as to the processes under which condensation occurs, and by measuring the atmospheric electricity, and by measuring right on the same premises the variation in the three components of magnetic force (which, you know, are related to electricity), and by getting the vertical gradients of pressure and temperature in the free air—we hope in that way to work out a very complex problem. It is complex; it is the study of a lifetime; it is the study of more than one mind for a lifetime; but we hope to work it out and to bring meteorology, which is now in about the condition that astronomy was in in the old Ptolemaic period, up to something approaching the precision of other sciences. The astronomer can predict the exact time of an eclipse. Weather forecasts can never be so exact, but we do believe that with the further knowledge that we will gain from the plans we have laid we shall get such a knowledge of the processes that are working in the free air that in time we will be able to say what the weather will be a month in advance, and, we hope, a season in advance, but the time is not yet.

Mr. SAMUEL. Referring to your report of storm warnings to vessels, are there any laws in any of the States making it criminal for the captain of a vessel to leave port after such a warning is given?

Professor MOORE. No.

The CHAIRMAN. Do you mean insurance legislation?

Mr. SAMUEL. There is not any insurance legislation. There may be regulations of insurance companies.

The CHAIRMAN. That is what I mean. Insurance regulations, I should have said.

Professor MOORE. The insurance underwriters have discussed whether or not they would cancel the insurance of a vessel where a captain leaves port in spite of the warning; but I understand that no definite decision has been reached in regard to it.

The CHAIRMAN. The case of the *Portland* is the most striking illustration of disaster following from a failure to regard the warning of the Bureau?

Professor MOORE. Yes.

Mr. SAMUEL. Where they carry passengers, there should be some such legislation.

The CHAIRMAN. There is not any such legislation, however.

Professor MOORE. There is just one further thing that I want to mention, Mr. Chairman, and that is the wonderful possibilities of utilizing wireless telegraphy in this meteorological work.

I was a member of a board appointed by the President to discuss and consider the whole problem of Government control of wireless communication. Three members of this board attended an international meeting in Germany recently. As a member of that board, I wrote in the provisions that I would like to have inserted in the international agreement, when it finally comes, to compel all vessels of a certain tonnage to carry wireless instruments, to have them licensed to carry wireless instruments, and to compel them to take a midday meteorological observation at least of the pressure of the air and the direction of the wind; then compel them to transmit that observation outward, and to transmit every other observation that they might receive. So that in the space of a few hours the entire North Atlantic would be swept clean of its observations and our central office in Washington and, say, the central office in Paris or in London would have the meteorological data taken from every ship floating on the Atlantic Ocean.

We will take the case at Washington. Here we get a chart of the Atlantic Ocean—

The CHAIRMAN. Yes; you would have to give a location in order to make the information intelligible and valuable.

Professor MOORE. Oh, certainly. The master of each vessel would be equipped with a chart, so that he could send just one number which would indicate his latitude and longitude closely enough, and then the pressure of the air and the velocity of the wind or the direction and estimated force of the wind. Then here at Washington we would be able to make a chart, say, of the Atlantic Ocean this morning to locate a storm, if there were one, anywhere in the Atlantic Ocean. Then we would telegraph that information right back to the coast wireless stations here under the control of the Government, have them flash it to the first vessels that could receive it, and it in turn would flash it onward, and so on, across the ocean, so that in the space of two hours from the time the vessels took their observations they would get back to themselves, in return, a statement showing if there were any danger in any part of the Atlantic, and telling them what force and direction of wind they would get in pretty

(Witnesses: Moore, Zappone, Jacobs.)

nearly every part of the Atlantic. This could be done with a high degree of accuracy.

Why, that system of utilizing wireless telegraphy when all vessels of trade and commerce are equipped with wireless instruments and are operating under an international agreement, will make the transportation of the ocean safer than transportation on the street-car line out here. There is no question about it, and it is bound to come—bound to come.

We already have arrangements with a number of the trans-Atlantic steamers, and some of those on the Pacific, also, to take and transmit to us observations when they are near enough to the shore so that we can get them. As yet we have no arrangements to transmit from one vessel to the other. That can only come when we have an international agreement that will compel each and every vessel to transmit all messages that it receives, no matter if they come from a competing company.

The CHAIRMAN. Wireless telegraph is still in its infancy, of course?

Professor MOORE. Yes. This is one of the utilities that will come through the Weather Service. We now have quite a number of observations from vessels at sea coming into our office here every day.

I am convinced that my preliminary estimate of \$30,000,000 as the annual return that the people of the country receive from the expenditure of less than \$1,500,000 each year on the Weather Service is a conservative one.

The CHAIRMAN. Unless you think of something further, that will be all, I think, Professor Moore. Mr. Zappone, do you think of anything else?

Mr. ZAPPONE. I think of nothing else, Mr. Chairman.

The CHAIRMAN. We are very greatly obliged to you, Professor.

Professor MOORE. I thank you, Mr. Chairman, for giving me all the latitude I wanted and for treating us so very fairly.

(The committee thereupon adjourned until Saturday, January 12, 1907, at 10 o'clock a. m.)

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES,
January 12, 1907.

The committee met this day.

Present, Hons. C. E. Littlefield (chairman), E. W. Samuel, and H. B. Flood.

STATEMENT OF MR. S. R. JACOBS, CHIEF OF THE MISCELLANEOUS DIVISION, OFFICE OF THE AUDITOR FOR THE STATE AND OTHER DEPARTMENTS.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. What position do you occupy?

Mr. JACOBS. I am chief of the miscellaneous division in the office of the Auditor for the State and other Departments.

The CHAIRMAN. And as such is it your duty to audit the disbursements of the Department of Agriculture?

Mr. JACOBS. Yes, sir.

The CHAIRMAN. Calling your attention to the project that is now being constructed under the auspices of the Weather Bureau of the Department of Agriculture, known as "Mount Weather," I would like to inquire whether the disbursements on account of that project have passed through your office since the project has been under way?

Mr. JACOBS. Yes, sir; they have.

The CHAIRMAN. The committee were advised by Mr. Moore that the only statutory authority that his Bureau had for the erection of this plant, upon which has already been expended about \$130,000 and which contemplates an ultimate expenditure of \$250,000 and an annual expenditure of something like \$25,000 for maintenance, is found in the appropriation bill under the language reading:

BUILDINGS, WEATHER BUREAU: For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations: *Provided*, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, outside of the District of Columbia: *And provided further*, That a portion of the Federal building site at Springfield Illinois, fronting ninety feet on Monroe street and extending back at that width one hundred and sixty feet along Seventh street to paved alley, may be used as a site for one of the five buildings proposed above, and is hereby transferred to the Department of Agriculture for that purpose, fifty-three thousand dollars.

Will you please state whether your attention as auditing officer was called to these disbursements and the authority under which they were made; and, if so, what action you took thereon and what your view was in relation thereto?

Mr. JACOBS. About a year and a half ago, if I remember correctly, some question was raised about the expenditures at Mount Weather, and we looked particularly into the expenditures under that appropriation and found that a considerable portion of the money was being spent at Mount Weather; after looking over the entire matter very carefully and discussing it with the head of the office, Colonel Timme, who was then Auditor, we came to the conclusion that the law undoubtedly authorized the Secretary of Agriculture to spend the money in that way if he saw fit to do so. That is to say, to erect five or more buildings at different points in the United States, and as there is no limit nor statement of how much these buildings are to cost, the money which was not used for that purpose could be used for any other building.

The CHAIRMAN. Where do you find that language in the appropriation act?

Mr. JACOBS. The first proviso, "That if any of the money for these several buildings remains unexpended for the several purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other

(Witness: Jacobs.)

buildings or grounds owned by the Government and occupied by the Weather Bureau, outside of the District of Columbia."

The CHAIRMAN. In your judgment, as Auditor, does a provision for repair, improvement, and equipment, authorize original construction?

Mr. JACOBS. No; but it would be authorized as one of the original buildings. There is no limit to the number of buildings; "not less than five buildings;" you might build a hundred.

The CHAIRMAN. Is there anything in the proviso that would authorize the building of another plant? That is, do you find anything in the proviso outside of the words, "repair, improvement, and equipment," that would authorize the building of a plant?

Mr. JACOBS. No, sir; it would be as one of the original buildings if it was an entirely new structure.

The CHAIRMAN. Under the language, "For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, etc.," and "storm-warning towers to properly equip these stations," is it your view that the word "stations" there relates to the five buildings mentioned in the statute prior thereto?

Mr. JACOBS. The first portion undoubtedly means for the sites and erection of five or more buildings and equipping those five or more buildings.

The CHAIRMAN. Where do you get the language "or more buildings?"

Mr. JACOBS. Simply because it says "not less than five." It does not say there shall be five, and that would authorize any number of new buildings "not less than five," and the first proviso would authorize the use of any of the money remaining after paying for the new buildings for repairs, improvements, and equipment of any existing building.

The CHAIRMAN. The appropriation was \$53,000 for not less than five buildings. That would contemplate prima facie a little over \$10,000 a building?

Mr. JACOBS. Not necessarily. It is entirely within the discretion of the Secretary of Agriculture.

The CHAIRMAN. While the appropriation provided for not less than five, would it be your construction that all those five could be put at one station?

Mr. JACOBS. The first two lines would seem to indicate the purchase of a site and the erection of a building thereon, a site and building together for these new structures.

The CHAIRMAN. The natural inference from that would be that the stations and buildings were contemporaneous?

Mr. JACOBS. Yes, sir.

The CHAIRMAN. And that there would be at least five. What is the view of your office—that when there was a provision for not less than five and an appropriation of \$50,000 that it was open to the Department to originate one that would cost \$250,000?

Mr. JACOBS. We would have no means of knowing that.

The CHAIRMAN. I just want to get your view of the construction of the statute.

Mr. JACOBS. Naturally the Department would not, if their appropriation was limited to \$50,000, go ahead and contract for a building to cost \$250,000.

The CHAIRMAN. What they have done is to start a plant that has already cost \$130,000, and which is expected to cost \$250,000 under this specific appropriation. I want to get your idea whether under an appropriation for five sites and buildings, which, as you say, contemplates five separate sites, upon each of which was a building—

Mr. JACOBS. That seems to be the intent of the law.

The CHAIRMAN. I would like to get your own view as to whether an appropriation that contemplated or that provided for the purchase of five sites and the location of a building on each of those sites and then limited the expenditure for that purpose or only appropriated for that purpose \$53,000, would justify the Department in originating a plan that would cost ultimately \$250,000?

Mr. JACOBS. If I understood the question correctly, that appropriation put to the utmost might authorize the purchase of five or more sites, and on one of those sites a completed building costing almost the entire appropriation might be erected.

The CHAIRMAN. Would it be your view—this may not be the proper construction, because I have not examined it with care, I want to see what in the view of your Department is possible under the appropriation. Would it be your view that an appropriation for either five or nine buildings, which would allow on its face from \$12,000 to \$15,000 for each site, with a building thereon, would be sufficient legal authority for the origination of a plant that would ultimately cost \$250,000?

Mr. JACOBS. Yes; if the building erected under the first appropriation was a complete building in itself, that is to say, there might have been a site purchased and a completed building erected thereon in one year and in another year they may have erected another building or added to the first building.

The CHAIRMAN. Now, this appropriation provides for five buildings for use as observatories. Under that appropriation can they construct any buildings except for use as observatories, and, if so, where is the limit?

Mr. JACOBS. No; the new buildings under that would have to be used as Weather Bureau observatories.

The CHAIRMAN. There is only one observatory at the Mount Weather plant and there are other buildings needed for observatory purposes, such as experimental and development purposes. Would that be authorized under your construction of the statute?

Mr. JACOBS. I am assuming that the appropriations for prior years read the same as the one we have before us. I think they do—

The CHAIRMAN (interrupting). I understand from Professor Moore that they are identical, except as they get larger.

Mr. JACOBS. It would be necessary for the building to come within the designation "Weather Bureau observatory" or else it must come in under the first proviso as "repair, improvement, and equipment" of an existing building, which may have been for an observatory or for any other purpose.

(Witness: Jacobs.)

The CHAIRMAN. Would there be any authority to create the other building under that appropriation, assuming now that it did not exist?

Mr. JACOBS. And use it for any other purpose than an observatory?

The CHAIRMAN. Yes, sir.

Mr. JACOBS. None in this appropriation.

The CHAIRMAN. Would any expenditure be authorized under an appropriation reading like this for a site or for a building for other than observatory purposes?

Mr. JACOBS. There is no authority in this appropriation for any new building except for an observatory.

The CHAIRMAN. So that the authority under this appropriation would be confined to the erection of an observatory and the purchase of a site therefor?

Mr. JACOBS. For new buildings; yes, sir.

The CHAIRMAN. Of course, repair and improvement; that would be predicated on a construction existing prior to the appropriation. That is sufficiently broad to cover repairs on existing buildings. I would like to know whether there would be any authority under this appropriation for the building of buildings in addition to an observatory building, and if you think there is any?

Mr. JACOBS. That is another question, as to whether or not another building may be erected on the same site with an existing building.

The CHAIRMAN. Other than the observatory building?

Mr. JACOBS. Whether or not it is an equipment of the main building, or an improvement of the main building, or auxiliary to the main building.

The CHAIRMAN. Assuming now that there would be authority under this appropriation for the building of any buildings on any site other than observatory buildings—

Mr. JACOBS (interrupting). Not for a new observatory building. I speak of an observatory building as a complete plant, and if I understand correctly, the buildings under construction at Mount Weather are auxiliary to the main observatory.

The CHAIRMAN. What do you mean by "auxiliary?" Would a laboratory be auxiliary to the observatory?

Mr. JACOBS. It might be.

The CHAIRMAN. In what way?

Mr. JACOBS. If it is for use in the work of the observatory. Matters of that kind we have to leave to the judgment of the officer charged with the administration of the law.

The CHAIRMAN. We have 50 or 60 observatories. Would a stable be auxiliary to an observatory from your point of view?

Mr. JACOBS. It might be.

The CHAIRMAN. And would a building that they have constructed for the purpose of making experiments and developments in the matter of climatology and magnetic lines be auxiliary to an observatory?

Mr. JACOBS. That might be; yes, sir.

The CHAIRMAN. Would anything that related to the work of the observatory be auxiliary within your view of this appropriation

so as to authorize the construction of a new building to an observatory?

Mr. JACOBS. No, sir. Suppose they erected a building, for example, for a storehouse for general supplies for the Weather Bureau not related in any way to that observatory, it would not be auxiliary to the observatory.

The CHAIRMAN. Would not a stable be auxiliary?

Mr. JACOBS. A stable might be if the observatory was at a remote place and it was necessary to have horses and vehicles for travel to and from a railroad station or to other points.

The CHAIRMAN. Has your attention been called to the physical character of Mount Weather from time to time as you have approved the disbursements?

Mr. JACOBS. Yes, sir; in a way it has been.

The CHAIRMAN. Well, there are eight buildings in addition to the observatory. Am I to infer that your Department has examined the physical conditions there so that they have been satisfied that the construction of all these buildings are in character auxiliary to the observatory and thereby authorized by the appropriation for an observatory?

Mr. JACOBS. I can not say they have to that extent. We do this: When each voucher is taken up for audit we examine that voucher carefully to see if the expense is one authorized by the appropriation.

The CHAIRMAN. Exactly. I am entirely unfamiliar with your practice. When a voucher reaches you in your Department what course do you pursue in relation to it before you approve it?

Mr. JACOBS. If I may start at the beginning I can tell you.

The CHAIRMAN. Yes, sir.

Mr. JACOBS. When an expense is incurred in the Department of Agriculture and a bill therefor is to be paid, a voucher is made up stating in detail the services or supplies for which payment is to be made. This voucher contains a certificate by the proper officer that the services or supplies have been received by the Department and shows the purpose for which they were used. That is followed by the approval (in the case of the Weather Bureau) by the Chief of the Weather Bureau. After that is done it goes to Mr. Zappone, the disbursing clerk, who pays the voucher and takes it up as a voucher in his account. When Mr. Zappone's account reaches our office each voucher in the account is carefully examined, to see that the calculations are correct, that the services or supplies have been received, that the bill has been properly approved, that the expense was authorized, and that it comes within the terms of the appropriation.

Mr. ZAPPONE. Right there, before those vouchers are transmitted to the Treasury, Mr. Jacobs failed to state that my combined account current is also approved by the Secretary. In other words, all accounts are approved by the Secretary before going to the Treasury.

Mr. JACOBS. Yes; I omitted that.

The CHAIRMAN. The Secretary has to rely for the details upon the subordinates of the Department. When the accounts come to you they have received the formal approval at least of the official interested in and responsible for the disbursements?

(Witness: Jacobs.)

Mr. JACOBS. If I may show you one of the vouchers, I think I can make it plain just how it goes through.

The CHAIRMAN. Have you one in relation to this particular appropriation?

Mr. JACOBS. Yes, sir; I have some here. There is one in relation to Mount Weather [exhibiting voucher].

The CHAIRMAN. They are all, except in amount, substantially in that form?

Mr. JACOBS. Yes, sir.

The CHAIRMAN. Please give us a statement as to the practice? Just take that typical voucher and explain the course of business in your Department.

Mr. JACOBS. This particular voucher which I have in my hand—do you want me to give the substance as I go through?

The CHAIRMAN. Yes, sir.

Mr. JACOBS. The caption reads, "United States Department of Agriculture, To Wm. H. McDonough, address, Mount Weather, Va., Dr." Then follows, "For services rendered as a stonemason in connection with the erection of Government buildings at Mount Weather, Va., on the dates named in the left-hand column, being ten and one-half days, at \$3 per day, for days actually worked, \$31.50." The dates of service are shown in the margin. That is followed by a certificate reading:

I certify that the foregoing account is correct; that the prices are just and reasonable; that the supplies and services therein described were necessary to the proper and efficient execution of the business of the Weather Bureau; that the services were performed as set forth; and that the supplies were received in good condition, and have been, or will be, applied to public uses, in the following manner, viz, in connection with the construction of Government buildings at Mount Weather, Va.

That certificate is signed by C. S. Wood, "Assistant Observer in Charge of Construction Work." Next follows a receipt from Mr. McDonough to Mr. Zappone, the disbursing clerk, for the amount of that bill, and Mr. Zappone's memorandum showing the description of the check by which the bill was paid. On the back or brief of the voucher is shown the appropriation from which it is to be paid, and there follows an indorsement "Approved: H. E. Williams, Acting Chief, United States Weather Bureau." An abstract is prepared of all vouchers paid from that appropriation. That particular voucher happened to be the only one put in the abstract during that quarter under that appropriation. Frequently there are hundreds of them, in this case only one. The abstract is signed by Mr. Zappone and is indorsed "Approved, consisting of one page and aggregating \$31.50, W. M. Hayes, Acting Secretary of Agriculture." The total of each abstract is carried by Mr. Zappone into his current account.

Mr. Zappone renders one account, in this particular quarter for nearly \$2,000,000, and on one paper shows all his disbursements itemized by appropriations. That account he sends to the Secretary of Agriculture. The Secretary of Agriculture then causes it to be given a careful administrative examination under rules which he has promulgated. Each abstract is sent to the particular bureau having

jurisdiction over expenditures from that appropriation. In this case it is the Weather Bureau, and the Chief of the Weather Bureau makes this certificate:

I certify that this abstract has been carefully examined and compared with the records of this Bureau, examined for expenditures to the amount of \$31.50, which are hereby approved and recommended.

WILLIS L. MOORE,
Chief of the Weather Bureau.

All of the abstracts being approved, the Secretary of Agriculture approves the entire account:

Respectfully referred to the Auditor for the State and other Departments. This account has received the administrative examination required by law and is approved.

W. M. HAYES,
Acting Secretary of Agriculture.

The CHAIRMAN. And the summary about which you are now testifying contains the aggregate of each appropriation arranged in order under the head of that appropriation?

Mr. JACOBS. Yes, sir. There is the one "Buildings, Weather Bureau, 1906, \$31.50 disbursed."

The CHAIRMAN. So when you reach the voucher and have this schedule before you that is notice to you as Auditor of the appropriation under which the Department has made the expenditure, and then so far as you make an examination you examine the appropriation and the voucher to see whether or not the expenditure is authorized?

Mr. JACOBS. That is correct.

Mr. ZAPPONE. In addition the appropriation is stamped on the back of each voucher.

Mr. JACOBS. I might say that Mr. Zappone renders, perhaps, the best accounts that come to our office.

The CHAIRMAN. That does not surprise the committee from what they see of Mr. Zappone.

Mr. JACOBS. This method has been originated during his term of office, and it has been adopted by the Comptroller as the standard form.

The CHAIRMAN. That method of stating the accounts?

Mr. JACOBS. Yes, sir; after a long fight with some of the old timers.

The CHAIRMAN. You can furnish us with a copy of that particular voucher to which you have called attention?

Mr. JACOBS. Yes, sir.

The CHAIRMAN. This voucher of Mr. McDonough, would it be your construction that upon its face it is sufficiently indicated that it is an expenditure authorized by this appropriation reading "For services rendered as stonemason in connection with the erection of Government buildings at Mount Weather, Va.?" I do not find any reference to the observatory.

Mr. JACOBS. It does not say the particular building.

The CHAIRMAN. I do not know what the practice has been.

Mr. JACOBS. It does in this case, however, Mr. Chairman, for the reason that from other vouchers and accounts we know that the Government is erecting buildings there. I have a voucher before me in

(Witnesses: Jacobs, Zappone.)

which the description of the service is not a printed form. It is for the "use of a two-horse farm team, etc.," and the purpose for which used is written in: "For use of Weather Bureau station at Mount Weather, Va., in connection with the construction of the physical laboratory."

The CHAIRMAN. In what way would the physical laboratory, in your judgment, be legitimately or legally, if you please, auxiliary to the observatory?

Mr. JACOBS. I think that is a question of the class which we call administrative. This appropriation is placed in the hands of the Secretary of Agriculture. It is in the very broadest terms and gives him the very widest discretion and the accounting officers would not attempt to go into a matter of that kind. It is presumed that the Secretary of Agriculture has followed the law and exercised his discretion in a legal manner unless something appears to indicate that he has not done so. There is nothing here to indicate that he has not followed the law. Congress has given him the very widest discretion and the authority is so general that we could scarcely raise any question as to his manner of exercising that authority.

The CHAIRMAN. In other words, if I get it correctly, your Department would feel that the exercise of the discretion of the Secretary of Agriculture or the proper official in whom was vested that discretion, as to the question of what was or was not auxiliary would be practically conclusive to your Department?

Mr. JACOBS. Yes, sir.

The CHAIRMAN. And you would rely upon that question of fact as to what was a reasonable construction of the language authorizing an observatory and the things that would be auxiliary?

Mr. JACOBS. Unless there was something clearly—

The CHAIRMAN (interrupting). Unless it was so obvious that you would feel bound to interfere?

Mr. JACOBS. Yes, sir.

The CHAIRMAN. Otherwise your Department would feel that the discretion of the Secretary was conclusive upon you upon that question of fact?

Mr. JACOBS. In a question of that kind; yes, sir.

The CHAIRMAN. I notice this voucher says: "I certify that the foregoing account is correct," etc., and "will be applied to public uses in the following manner, viz, in connection with the construction of Government buildings at Mount Weather, Va.," and that, I suppose, is subject to the same suggestion you have made?

Mr. JACOBS. Yes, sir. You will see, Mr. Chairman, that in that particular voucher the descriptive matter is printed in. A great many of the accounts are for personal services, because they have done the work there very largely by day labor and not by contract.

The CHAIRMAN. Take that question of the physical laboratory. Is that the term?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Suppose, for instance, the question arose as to the propriety of the construction of a building for a physical laboratory which might cost \$25,000 or \$30,000, as to whether that was reasonably auxiliary or legitimately incidental to—perhaps that is broader

yet—as to whether that was a proper construction under the language, and for that purpose you would feel bound to take the judgment of the Secretary of Agriculture?

Mr. JACOBS. Yes, sir.

The CHAIRMAN. Then I infer that there has never been in your Department any specific investigation of any of these items of expenditure, and as no particular question has ever been raised by anybody you have rather felt bound to take the judgment of the Department?

Mr. JACOBS. As I stated at the beginning, we did some months ago take up this very question of the money being expended at Mount Weather out of this appropriation, a large part of the appropriation being spent there. I took up the matter personally with the Auditor, and I think he talked it over with the Comptroller, and we were all thoroughly agreed that the Department had nothing to do with what was put entirely in the hands of the Secretary of Agriculture. Congress has given him the very widest discretion and he is responsible for the proper expenditure of the money.

The CHAIRMAN. I understand that the project there was originated something like five years ago?

Mr. JACOBS. There is nothing in the accounts that would show that, so far as I am aware.

The CHAIRMAN. How could that be?

Mr. JACOBS. Probably in each year there will be vouchers for expenses incurred at Mount Weather, but nothing there to call the Auditor's attention to the fact that the Weather Bureau contemplated an expenditure of \$250,000.

The CHAIRMAN. One hundred and thirty thousand dollars up to date and \$250,000 ultimately; that is, provided it is developed in accordance with the ideas of the Bureau. How long have you been in your present position?

Mr. JACOBS. Not quite two years. I have been in the auditing office about eight years.

The CHAIRMAN. So you are familiar with the whole thing, and if there was anything in the accounts that had been submitted before that time that would have called attention to it you would have been familiar with it?

Mr. JACOBS. I have not had to deal with this particular division except for the past two years. I have been in the office, but not in the division.

The CHAIRMAN. Do you know whether the question was ever raised before last year?

Mr. JACOBS. I do not think so, because it has been discussed in the office in my time and nothing has been said about the question having been brought up before.

The CHAIRMAN. Your idea would be that it has been raised for the first time during the last year and a half or two years?

Mr. JACOBS. Yes, sir.

The CHAIRMAN. You think the accounts prior to that time did not necessarily indicate a large expenditure?

Mr. JACOBS. Probably not, because the vouchers would come in every quarter. Each account would have a few vouchers in it as to Mount Weather, and unless the examining clerk got several accounts together (those accounts are very bulky) and took out the vouchers as

(Witness: Jacobs.)

to this appropriation and then took those relating to Mount Weather and got them together, nothing would indicate that any great amount of expense had been incurred at that place.

The CHAIRMAN. This language that the appropriation bill contains with the construction that has been placed upon it in practice would authorize the construction of a similar plant elsewhere and its duplication. I mean within the discretion of the Secretary. There is nothing in the law, if this construction is correct and the practice of the Department is proper, that would inhibit the duplication of Mount Weather at one or more places throughout the country?

Mr. JACOBS. No, sir.

The CHAIRMAN. Under this language in the appropriation act?

Mr. JACOBS. It could be done so long as the law remained as it is.

The CHAIRMAN. Have you present any voucher showing the construction of an observatory on another site under this appropriation, so we could see the form?

Mr. JACOBS. I have one here for Oklahoma. This is a voucher for payment on a contract for a building at Oklahoma City, and I have the contract with me also.

The CHAIRMAN. This Oklahoma voucher reads:

For labor and material in the erection and completion of a two-story and cellar brick building for the use of the Weather Bureau, United States Department of Agriculture, at Oklahoma, Okla., being the fourth and final payment in full for the satisfactory completion of said building, including all materials and work embraced in the contract and specifications, at \$19,872, \$3,147. Contract, bond, and specifications filed with voucher No. 15, second quarter, 1906, buildings, Weather Bureau.

There is nothing in that voucher which would indicate that the building was to be used as a Weather Bureau observatory. Does the contract localize that so that you can see whether that was an observatory, and therefore within the appropriation?

Mr. JACOBS. There are the contract and specifications in full. They cite the law and everything necessary to an understanding of the undertaking. Here are all the specifications showing the character of the building.

The CHAIRMAN. Is there anything in it to disclose that it is for an observatory?

Mr. JACOBS. It says: "Proposals for a two-story and cellar brick building for the use of the Weather Bureau, United States Department of Agriculture, at Oklahoma City." They do not call it an observatory in any place, apparently. They say, "Building for use of the United States Weather Bureau." I do not know just what they would call it.

The CHAIRMAN. This came before you personally?

Mr. JACOBS. No, sir. I do not see one voucher in a thousand that come there. We have 25 clerks to do that work. I only see them when there is some question about the vouchers.

The CHAIRMAN. Is there anything in that contract, bond, or specifications that would advise your office whether the building was for use as a Weather Bureau observatory, or what use the building was for?

Mr. JACOBS. Not so far as I have examined. Of course, from the fact that the building is being erected under that appropriation,

(Witness: Jacobs.)

and presuming that the Secretary of Agriculture is doing his duty, we assume that that building is to be used as an observatory. It shows that it is for the use of the Weather Bureau, and the specifications show the character of the building. We know that the Weather Bureau is using these buildings for observatories, and it is not presumed that the Secretary of Agriculture is going to use it for any other purpose.

The CHAIRMAN. Are they using buildings for any other purpose, or do you not know?

Mr. JACOBS. I am speaking from general knowledge of the work of the Weather Bureau.

The CHAIRMAN. Have they constructed buildings for any other purpose except for observatories?

Mr. JACOBS. Not that I am aware of—that is, these buildings located throughout the country.

The CHAIRMAN. So in the case of a building like this, although it may not be within the terms of the appropriation, in view of the discretion vested in the Secretary of Agriculture you would feel satisfied that an expenditure for that purpose was made under that appropriation although there was no specific inquiry made?

Mr. JACOBS. I would not feel justified in asking the Secretary as to whether or not that building was for a Weather Bureau observatory.

The CHAIRMAN. You assume that he properly discharges his duties, and approve the vouchers on that assumption?

Mr. JACOBS. We assume that to a certain extent.

The CHAIRMAN. In a case like this?

Mr. JACOBS. Yes, sir. I think the common sense of the Auditor would determine that.

The CHAIRMAN. If I understand it correctly, your Department does not undertake to place a definite construction upon the term "auxiliary," but relies rather upon the practice of the Department of Agriculture?

Mr. JACOBS. Exactly.

The CHAIRMAN. And you feel that their action under these circumstances, in view of this discretion, is practically conclusive upon your Department, and that you ought to give it such credence as justifies you in approving the expenditure?

Mr. JACOBS. Yes, sir.

The CHAIRMAN. And that does not require your Department to have any definition of "auxiliary?"

Mr. JACOBS. I do not think it would; no, sir.

(Witness: Zappone.)

JANUARY 12, 1907.

(Part of testimony, given on above date, before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF MR. A. ZAPPONE, CHIEF OF DIVISION AND DISBURSING CLERK, DEPARTMENT OF AGRICULTURE.

MR. ZAPPONE. I would like to make a statement on the scope of the law, which seems to me pertinent at this time, and the construction that the Department of Agriculture has placed upon it. First of all, I would like to read section 161 of the Revised Statutes:

The head of each Department is authorized to prescribe regulations, not inconsistent with law, for the government of his Department, the conduct of its officers and clerks, the distribution and performance of its business, and custody, use, and preservation of the records, papers, and property appertaining to it.

The next matter I wish to call attention to is an extract from a decision of the Comptroller of the Treasury, which appears in his Digest of Decisions. It reads as follows:

The question whether a particular expense is necessary or appropriate to the object for which an appropriation is made is one which is ordinarily within the discretion of the head of the Department having control of the disbursement of the moneys appropriated; but this discretion is not an unlimited discretion; it is a legal discretion, subject to the terms of the particular appropriation and to restrictions imposed by other laws. (7 Pub., 31; 8 id., 327; 15 MS., 88, 313.)

I wish also to quote the following from the Comptroller's decisions:

A contemporaneous construction by the head of a Department of a statute of which the true construction is not free from doubt and which has been followed in practice and acquiesced in by the accounting officers for a period of ten years will not be disturbed. (4 Pub., 479.)

Another decision reads:

It is only when the meaning of a statute is doubtful or ambiguous that the contemporaneous construction of a statute by executive officers or the practice of a Department is entitled as such to great weight. (7 Pub., 178.)

And the last decision that I wish to read is as follows:

A doubt as to the meaning of a statute, in order to entitle a contemporaneous construction of the statute by executive officers or the practice of a Department to great weight, must be a reasonable doubt arising upon reading all the provisions of the statute and of statutes in pari materia together. (7 Pub., 178.)

The statute and extracts from the Decisions of the Comptroller which I have read cover all the laws on this subject with which I am familiar. If you should require anything else I ask that the Solicitor of our Department be given an opportunity to be heard on this matter.

Now, to pass to the main point—

The CHAIRMAN. I will say right there, as to the Solicitor of the Department, it is of course a matter that might be open to two constructions; at least it is extremely uncertain and indefinite—the language is—and if the construction which has been placed upon it by the Department under the circumstances is correct, it opens a tremendously wide scope of power, and I would be very glad to have, if the Solicitor would like to submit it, any statement from him as to his opinion of the proper construction of this statute.

(Witness: Zappone.)

Mr. ZAPPONE. I will ask him for it; but I would prefer, if it is agreeable to this committee, that he make his statement personally.

The CHAIRMAN. We would be very glad to have him come before the committee and state his views.

Mr. ZAPPONE. And, at the same time, I would like him to state his connection with the preparation and issuance of the regulations of the Department—regulations based upon the meat, pure food, and other laws which are constantly being enacted by Congress. I think that this information should be spread upon the record, as it pertains to the duties of his office, which duties have been the subject of previous discussion by the committee.

The CHAIRMAN. We will be very glad to hear him.

Mr. ZAPPONE. Now, to pass to the next question you have raised, Mr. Chairman, as to the construction of the law in regard to the word "observatory"—that is, the meaning of the word "observatory" as applied to the construction of the buildings at Mount Weather. Before attempting to answer it in full I want to quote from Webster's Dictionary the definition of the word "observatory."

Observatory. A place for astronomical or physical observations.

I maintain, Mr. Chairman, and I believe I am correct in my position, that each and every one of the buildings erected at Mount Weather is coordinate or in direct connection with the work of the main observatory building at that point. There is the administration building or observatory; another one of the buildings is a physical laboratory or observatory, and then we have the magnetic observatory and the absolute observatory. We call them "buildings" in this report before us of the Chief of the Weather Bureau, and in that contract from which you just read, which is for building a small observatory at Oklahoma, Okla., and our contracts are so worded for other buildings all over the country; but the accounting officers of the Treasury and every one that has dealings with the Weather Bureau knows that all the buildings it erects are for observatory purposes.

Now, the law says "observatory," and I want to repeat that the word "observatory" correctly fits every building that we have erected, either at Mount Weather or elsewhere.

The CHAIRMAN. Your idea is that the term "physical" extends its scope?

Mr. ZAPPONE. Yes; that extends its scope. It is all in direct connection with the work of the main observatory building at Mount Weather.

You also brought out the question of the total cost of the plant in your discussion with Mr. Jacobs. You asked if under that law the Weather Bureau could erect a building costing \$250,000 or a plant costing \$250,000 at Mount Weather. I want to say, for the purpose of enlightening the committee, that the work at Mount Weather has been under construction for the last five years, one or two buildings being erected each year. It began in the fall of 1902. In that year the main observatory building was erected.

The CHAIRMAN. What did it cost?

Mr. ZAPPONE. It ultimately cost \$20,000.

The CHAIRMAN. Is that 1902?

(Witness: Zappone.)

Mr. ZAPPONE. This report which I have here is for 1906, the last report of the Chief of the Weather Bureau.

The CHAIRMAN. No; but the first recommendation was when?

Mr. ZAPPONE. In the fall of 1902, being the fiscal year 1903. The stable also cost \$2,000 in that year. In that year the appropriation act required the Weather Bureau to erect not less than six buildings. I will call attention to the fact that it erected seven buildings, one more than required by law.

The CHAIRMAN. What was the total appropriation?

Mr. ZAPPONE. The total appropriation was \$48,000, if I recollect correctly.

The CHAIRMAN. What was the character of the other buildings?

Mr. ZAPPONE. Just the same as—

The CHAIRMAN. Observatories?

Mr. ZAPPONE. Yes, sir; they are all observatories; they are all alike; the buildings are standard in character.

The CHAIRMAN. There was \$48,000 appropriated?

Mr. ZAPPONE. Yes.

The CHAIRMAN. And that was for not less than six buildings, and they did erect seven?

Mr. ZAPPONE. Yes; they did erect seven.

The CHAIRMAN. One of which cost \$20,000; and that would leave \$28,000 for the other six?

Mr. ZAPPONE. Yes; and they were all observatories; they were all observatory buildings, small observatory buildings. Outside of Mount Weather they were located at isolated points—for instance, Amarillo, Tex., and Modena, Utah. There is no other building within 200 miles of Modena; it is out on the prairie. Sand Key, Fla., is a little key out in the Gulf of Mexico, 10 miles south of Key West. Then we have another building at Southeast Farallone, which is an island out in the Pacific Ocean, about 26 miles below Point Reyes, Cal.

The CHAIRMAN. Just give the cost of the six buildings erected in the fiscal year 1903 as a part of your answer right here; give each building separate.

Mr. ZAPPONE. Amarillo, Tex., cost \$7,758. Key West, Fla., cost \$10,014.75. Modena, Utah, cost \$4,000. I give these amounts in round numbers. Sand Key, Fla., cost \$5,000, and Southeast Farallone cost \$5,000.

The CHAIRMAN. Mount Weather?

Mr. ZAPPONE. That is five. There are five outside of Mount Weather.

The CHAIRMAN. There are two at Mount Weather?

Mr. ZAPPONE. Yes.

The CHAIRMAN. One of the buildings at Mount Weather cost \$20,000?

Mr. ZAPPONE. Twenty thousand dollars.

The CHAIRMAN. What was the other?

Mr. ZAPPONE. The stable, at \$2,000. I want to say, in connection with the main observatory at Mount Weather, that the original contract cost, if I remember properly, was something like the half of that, about \$10,000 or \$12,000, and the additional amount was for

additional repairs and alterations, which Professor Moore has explained. He explained that as the work progressed and the plan developed it was realized that more space would be required, and the third story of the building, which was originally designed as an attic story, was remodeled into office rooms, so as to get a square effect of ceiling and side walls and the—

The CHAIRMAN. That appropriation provided for not less than six buildings, but the Department actually constructed seven buildings.

Mr. ZAPPONE. Actually constructed seven.

The CHAIRMAN. Two of which were at Mount Weather?

Mr. ZAPPONE. Yes.

The CHAIRMAN. The total appropriation was \$48,000?

Mr. ZAPPONE. That is what I recollect. I have not the bill here before me. It may have been the same amount as for the year 1903.

The CHAIRMAN. If it was \$48,000, you exceeded the appropriation by nearly \$6,000 for that year.

Mr. ZAPPONE. I explained that at Mount Weather the additional amount expended was for alterations and repairs. It made the expenses lap over into the next year, which is permissible under these laws for buildings which are enacted from year to year, and made the total cost of the administration building and stable about \$20,000. It is under the provision which says that any balance remaining, meaning that any balance remaining after we have erected the number of buildings provided for by Congress, may be used for the further improvement, repair, and extension of any building that we may have or the erection of another building.

The CHAIRMAN. So that if there is any apparent excess it may be that you have used a surplus that came over from another year under the provision for repairs and improvement?

Mr. ZAPPONE. Yes; that was done nearly every year; at least every year toward the last, I think.

The CHAIRMAN. Could that be used for original construction? This is original construction.

Mr. ZAPPONE. Yes; after the original building is completed under the contract, or the terms of the contract are carried out, I should say that it complied with the law.

The CHAIRMAN. You would use any surplus that was left over to provide for repairs and improvement for construction proper?

Mr. ZAPPONE. Yes; but it is not required. A balance left from one year can be applied toward the improvement, repair, and alteration of other buildings owned by the Government or for partial construction. The law does not say that each building, in excess of the number specified by law, shall be completed.

The CHAIRMAN. Oh, no.

Mr. ZAPPONE. Because in that same law it says "repairs, alterations, and improvements." We could complete a building, or if, before its completion, we found some changes were necessary, we could go ahead and make them under that law, under the construction I place on it.

The CHAIRMAN. I suppose anything that came legitimately under the scope of repair and equipment you could legitimately do?

Mr. ZAPPONE. Yes.

(Witness: Zappone.)

The CHAIRMAN. But if you had a balance left over after the construction of these buildings, not less than five or not less than six—that is, if you had any surplus left over from the construction of the buildings under that provision, would you feel authorized to use that balance as a part for the construction of new buildings?

Mr. ZAPPONE. Most undoubtedly, sir; most undoubtedly, if the contract be made before the close of the fiscal year. A contract made before the close of a fiscal year may extend over into the next year and be completed in the next fiscal year. That is a provision of law, and we have followed that in some of these cases.

The CHAIRMAN. Has this been the practice of the Department? For instance, here is \$53,000 in 1906, and if you contracted for not less than five buildings, and the contract did not exceed the \$53,000, and that left you on hand, say, for the purpose of illustration, \$5,000, and this next year you have another appropriation for not less than six buildings at \$70,000, say, to illustrate, would the Department feel authorized, or has it been the practice of the Department, to take the sum left over from the previous appropriation, namely \$5,000, and add it to the \$70,000, making \$75,000 in all, as a basis of original construction for the next year?

Mr. ZAPPONE. Mr. Chairman, that is hardly the way to put the question. That is, I can hardly base an answer on it. The Weather Bureau would not have any such thing in mind, for the reason that in the majority of cases the law for the next year would not have been passed at that time at all; so that they would have no knowledge of what their amount would be for the following year. The endeavor of the Weather Bureau has been to start these buildings in the early summer and try to have them completed before the 1st of January. Sometimes that is not possible and the construction will go over into the second half of the year, and will probably be finished in the early spring. It is very seldom that Congress has passed the large appropriation bills by that time, so that we would not know what the amount would be for the next year. But we would know at that time what balance we would have pertaining to the appropriation of that particular year, and that balance we could use for the repair and improvement of other buildings owned by the Weather Bureau, or make a contract for construction work, such as was done here in the case of one of the buildings at Mount Weather, the physical laboratory building. That building was not completed last year, and I think it will probably take two years to finish it.

The CHAIRMAN. Then, as I understand you, your idea is that you would not have any authority to use the balance for original construction, but would be confined to alteration, repair, improvement, and equipment, as to those balances that were left over.

Mr. ZAPPONE. You did not understand my reply, Mr. Chairman.

The CHAIRMAN. I did not get your meaning?

Mr. ZAPPONE. No, sir; the balance can be used either for original construction or for repair and improvement.

The CHAIRMAN. Then what effect does that limitation have on that balance?

Mr. ZAPPONE. None whatever, because the entire lump sum is there to be used as the Secretary of Agriculture may direct. He

must erect five buildings under the law, and he may use any balance on other structures.

The CHAIRMAN. Then this language in regard to alterations, repairs and improvements does not have any effect? That language might as well not have been used?

Mr. ZAPPONE. It does have effect. It gives opportunity to the Department to use any balance left over for repair and improvement of any other building owned by the Government and to equip them with apparatus and other things.

The CHAIRMAN. That is clearly within the proviso, because that is expressly provided for.

Mr. ZAPPONE. Yes; any balance remaining may be used for repair, improvement, and equipment.

The CHAIRMAN. Yes. In addition to that, is it the judgment of your Department that you can use it also for original construction? That is what I want to get at. I do not know that I make myself clear. Here is a proviso that at least undertakes, apparently, to limit the expenditure of any balance of the sum that is used in the construction of these buildings that are provided for, to repairs, improvements, and equipment. Now, what I want to get at is whether under the construction placed on that proviso by your Department, you would also have authority to use any part of that balance for new construction, original construction? Do I make it clear?

Mr. ZAPPONE. That is very clear to me, and I think we have such authority. I do not think there is any question about it. Say the balance is \$3,000. We might be able to put up another small building for that amount.

The CHAIRMAN. Well, that is your idea about it; that is what I wanted to get at.

Mr. ZAPPONE. Yes; I feel quite sure that that language is broad enough to cover it.

Now, in the next fiscal year, 1904, the power house and balloon building was constructed at Mount Weather at a cost of \$8,650. In that year the law provided for seven buildings, and the Bureau erected seven buildings.

The CHAIRMAN. One of those was at Mount Weather?

Mr. ZAPPONE. Yes; I have explained that. That was the power house and balloon building, which is one building.

The CHAIRMAN. Yes.

Mr. ZAPPONE. In the fiscal year 1905 the absolute building, or observatory, was erected at Mount Weather at a cost of about \$6,500. Also the variation building, or observatory, at a cost of about \$8,000. The law provided for five buildings that year, and only five buildings were erected.

In the fiscal year 1905 the kite building was also erected at Mount Weather at a cost of \$3,000. While that is termed a building it is nothing more than a shelter for kites, as Professor Moore explained. There was also erected in that year a barn at Mount Weather, or a shed for storage purposes and for stabling the animals of some of the employees there, as explained by the Chief of the Weather Bureau, the cost of which was \$900. I think it was stated yesterday that it was \$400, but we did not have the figures with us at that time. The

(Witness: Zappone.)

farmhouse for workmen was also remodeled and repaired in that year at a cost of \$1,300. In that case it is apparent that there was a balance which was applied to that purpose.

The CHAIRMAN. Yes.

Mr. ZAPPONE. In the next fiscal year, 1906, the physical laboratory was started, which will ultimately cost about \$25,000, from the statement made by the Chief of the Weather Bureau. It is not set forth here as a building, as it is not yet completed. During the fiscal year 1906 the amount expended for that purpose was something like \$10,000.

I merely make mention of these in detail to show that the Weather Bureau at no time has expended \$250,000 for a single building in one year. Up to the present time \$130,000 has been expended, according to Professor Moore's statement.

The CHAIRMAN. You mean at Mount Weather?

Mr. ZAPPONE. Yes; I am still speaking about Mount Weather; \$130,000 up to the present time, and for buildings erected slowly, year by year, and which I have explained in detail. In his testimony before you the Chief of the Weather Bureau stated that the main object of the plant was submitted to the Committee on Agriculture in his annual report of 1903, which explains in detail the scope of the work and what they expected to accomplish at that point; and this was further amplified in the reports of the Chief of the Weather Bureau of the next year, 1904, and also in 1905 and in 1906. In other words, there has been mention of the work at that place in the reports of the Chief of the Weather Bureau for each year from its very inception.

The CHAIRMAN. When was the first building constructed at Mount Weather?

Mr. ZAPPONE. In the fall of 1902. I read you that.

The CHAIRMAN. Was the lot purchased the same year?

Mr. ZAPPONE. The lot was purchased the same year. The cost of the lot is also given here, and I should have said that the cost of the lots in every case has been included in the total amount that I have mentioned.

The CHAIRMAN. Yes.

Mr. ZAPPONE. Now, for instance, the main observatory building; the cost of the first site purchased was \$2,000. A little later there was a second purchase made, I think, of 10⁹ acres, costing \$650, making a total of \$2,650. Professor Moore, I believe, stated that it was \$2,500, but he did not have the figures before him at that time.

Mr. SAMUEL. Was the cost of those buildings charged up against the appropriation for the Weather Bureau?

Mr. ZAPPONE. They have all been charged up against the appropriations for the Weather Bureau.

Mr. SAMUEL. I do not see it in this recapitulation.

Mr. ZAPPONE. They come in under it, but they are not in the recapitulation as a group, as that is not one of the groups suggested by your committee. They come under the head of the appropriation for "Buildings, Weather Bureau," and appear under the group for "Miscellaneous supplies," etc.

Mr. SAMUEL. There is nothing about buildings here at all.

Mr. ZAPPONE. There is in the total. If you will go back a little

further you will find it under the head of the appropriations for the Weather Bureau.

Mr. SAMUEL. It is not in the recapitulation.

Mr. ZAPPONE. No; because that is not one of the groups that the committee suggested. Mr. Chairman, I have nothing more to add. I merely wanted to bring out these points.

The CHAIRMAN. I want to ask Mr. Jacobs another question.

STATEMENT OF MR. S. R. JACOBS—Continued.

The CHAIRMAN. I want to call your attention to the language of the appropriation for the purchase of sites, and for the erection of not less than five buildings for use as Weather Bureau observatories, and I want to ask you whether or not in your judgment that contemplates a site and a building as a project.

Mr. JACOBS. I think it would—any reasonable construction of it.

The CHAIRMAN. That is, would it be your view that a project was contemplated by that language, consisting of a site and a building?

Mr. JACOBS. I think that is a reasonable interpretation of it.

The CHAIRMAN. And without discussing the scope of the term "observatory," it would be a site and a building for a Weather Bureau observatory—it would be confined to that, the project, and of course whatever might be legitimately involved in it?

Mr. JACOBS. Yes.

The CHAIRMAN. Then would it be your judgment that that language contemplated the creation of at least five projects of that character?

Mr. JACOBS. Under the law there must be at least five.

The CHAIRMAN. This would be five.

Mr. JACOBS. Five separate buildings, at least.

The CHAIRMAN. Consisting of a site and observatory building?

Mr. JACOBS. Yes; I think that is a reasonable construction of that.

The CHAIRMAN. Would you like to make any further statement about anything that you have been inquired of about, anything by way of addition to what you have said?

Mr. JACOBS. I do not know of anything else, Mr. Chairman, except possibly this: These appropriations for the Department of Agriculture are unusual in that they give the Secretary of Agriculture the very widest authority, much more so than in case of the other Departments. Here you will find an appropriation of a million dollars. The whole fund is in the control of the Secretary of Agriculture, with scarcely any limitation. Whatever he says is applicable to a certain purpose we are obliged to pass.

The CHAIRMAN. That is, your judgment is that that law has vested in him the discretion to spend those general appropriations within his discretion?

Mr. JACOBS. Yes.

The CHAIRMAN. And his discretion is binding upon your Department.

Mr. JACOBS. There is here the same tendency as is shown in other appropriation acts from year to year—that is, to limit the authority of the Auditors and to put more authority in the hands of the ad-

(Witness: Jacobs.)

ministrative officers. The Auditors are getting now to be not much more than bookkeepers, and we are more and more limited every year.

These appropriations for the Department of Agriculture are very large, and the Secretary has very great authority, but so far as we are able to see from the Auditor's office the money is handled in a careful manner. Of course we look at everything as far as we can, and if we think any expenditure is wrong, and it is a matter within our power, we disallow. But the accounts appear to be very carefully audited in the Department. Mr. Zappone has done a great deal to improve the system there, and I think the accounts come to the Auditor in as good condition as any, if they are not the best accounts that we handle.

Mr. Zappone has a very good system of audit in the Department, and he has good forms of vouchers and forms of accounts. So that although the law has put the expenditure in the hands of the Secretary of Agriculture and limited the authority of the Auditor, so far as I am able to observe from the Auditor's standpoint, the expenditure of the money is carefully watched in the Department.

The CHAIRMAN. I do not believe that your Department has really any authority to inquire into the economy of the expenditure or the wisdom of it, but the question you have to pass on is whether it is authorized.

Mr. JACOBS. Whether it is within the scope of the law.

The CHAIRMAN. Whether it is within the scope of the law; yes.

Mr. JACOBS. And as I say, the provisions are so wide in their scope that there is not very much for the Auditor to pass upon there except it may be something that is in violation of a general law.

The CHAIRMAN. And you make your construction of the act more or less in harmony with the general scope of the appropriations for that Department, as to their general character?

Mr. JACOBS. Necessarily. Congress has put the money in the hands of the Secretary of Agriculture to spend in his discretion.

The CHAIRMAN. Would provisions like that in other portions of the bill be an aid to you in reaching a proper conclusion in reference to this particular proposition?

Mr. JACOBS. No; I am speaking of the proposition as a whole.

The CHAIRMAN. Yes; exactly.

Mr. JACOBS. Here is the same thing in this appropriation. It is in the widest terms. Everything is in the hands of the Secretary of Agriculture, and the audit of the accounts must necessarily be in the administrative office. That is the real audit, that which gets at questions of policy, necessity, economy, and others of that sort. The Auditor can not touch those matters. He can not go to the Secretary of Agriculture and say, "Well, you have bought an article here for \$10 when we think you might have gotten just as good a one for \$9."

The CHAIRMAN. You never have had any such authority as that?

Mr. JACOBS. No, sir; that is one of the things that are left in the hands of the administrative officer. I give that as an example.

The CHAIRMAN. That is a question of economy and not of authority to expend.

Mr. JACOBS. Yes; it is entirely in his hands, how he shall spend and what he shall spend.

(Witnesses: Jacobs, McCabe, Zappone.)

The CHAIRMAN. So long as it is within the purposes of the appropriation?

Mr. JACOBS. Yes; and even that he decides. These appropriations are so wide that anything that he says is for the purpose is for that purpose.

The CHAIRMAN. It almost comes down to this, that practically the Secretary of Agriculture is his own auditor?

Mr. JACOBS. Yes, it does; simply from the scope of the appropriations. Take these large appropriations for investigations. Here is a million dollars for the investigation of a certain matter, for such expenses as the Secretary of Agriculture may authorize and direct. He can direct almost anything under that.

The CHAIRMAN. Certainly.

Mr. JACOBS. But, as I say, so far as we are able to observe, the expenditures are made in a careful manner, and the accounts certainly come to us in an excellent condition.

The CHAIRMAN. Have you anything else to say?

Mr. ZAPPONE. I have nothing more to ask, if you are satisfied, Mr. Chairman.

The CHAIRMAN. No; I have nothing further. We are very much obliged to you, Mr. Jacobs. You are very accommodating.

JANUARY 15, 1907.

(Part of testimony, given on above date, before Committee on Expenditures in the Department of Agriculture.)

**STATEMENT OF GEORGE P. McCABE, SOLICITOR OF THE
DEPARTMENT OF AGRICULTURE.**

(The witness was duly sworn by the chairman.)

The CHAIRMAN. What position do you occupy?

Mr. McCABE. I am Solicitor of the Agricultural Department.

The CHAIRMAN. How long have you been such?

Mr. McCABE. For two years. Previous to that I was a law clerk.

The CHAIRMAN. How long had you been a law clerk?

Mr. McCABE. Two years.

The CHAIRMAN. And prior to that what was your business?

Mr. McCABE. A law student, employed in the Agricultural Department as law clerk and performing the duties of a law clerk, but without the title.

The CHAIRMAN. Were you admitted to the bar after the conclusion of your studies?

Mr. McCABE. I was admitted here. I was not admitted to the bar in Utah prior to my coming here.

The CHAIRMAN. You were admitted to the bar in Utah?

Mr. McCABE. No, sir.

The CHAIRMAN. Where did you pursue the study of law in Utah?

Mr. McCABE. In a law office.

The CHAIRMAN. And did you practice any after being admitted to the bar?

(Witness: McCabe.)

Mr. McCABE. No, sir; I was not admitted to the bar in Utah. I came right here and studied here with that purpose in view.

The CHAIRMAN. Did you take a course in one of the law schools here?

Mr. McCABE. Yes, sir.

The CHAIRMAN. After your study in the office?

Mr. McCABE. Yes, sir.

The CHAIRMAN. Had you been admitted to the bar before leaving Utah?

Mr. McCABE. No, sir.

The CHAIRMAN. And subsequently you were admitted to the bar in the District of Columbia?

Mr. McCABE. Yes, sir.

The CHAIRMAN. On the conclusion of your law studies in that school?

Mr. McCABE. Yes, sir.

The CHAIRMAN. And since then you have been employed two years as law clerk in the Department?

Mr. McCABE. Yes, sir.

The CHAIRMAN. And two years as solicitor of the Department?

Mr. McCABE. Yes, sir.

The CHAIRMAN. The committee wants to get your view of the authority under which the appropriations for Mount Weather have been expended. You may proceed to explain it in your own way, and if we have any questions to ask in relation to it we will make the inquiry.

Mr. McCABE. My understanding is that the first building was erected in the fiscal year 1903, under an appropriation which provided that not less than five buildings should be erected. Prior to that, for instance in 1902, you will note that the location of the buildings was not left to the discretion of the Secretary, but the number of buildings and the places where they were to be located were specified in the appropriation. In the 1903 appropriation the authority and discretion of the Secretary was apparently broadened, and appears to be the same as it appears in the 1906 bill which you have before you.

It was provided that he was to construct not less than so many buildings, and the place where each building was to be located was to be determined and left to his discretion. Under that discretion the first building was erected at Mount Weather. Subsequently under the provision of law leaving it to the discretion of the Secretary as to the maximum number of buildings to be erected and the proviso—

If any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau outside of the District of Columbia.

under that authority each year after constructing the minimum number of buildings that was required by the law, a portion of the money which had been appropriated was used either for the erection of a new building at Mount Weather or for the improvement and alteration of a building there which had already been begun.

The CHAIRMAN. Is it your opinion that under the language "for the repair, improvement, and equipment," an appropriation is authorized for construction?

Mr. McCABE. No, sir.

The CHAIRMAN. Or erection?

Mr. McCABE. No, sir. I think the authority for the erection comes in under the words "not less than five" or "not less than six." I think that under that wording of the law the Secretary has the right to construct 8 or 9 or 10 buildings, so long as he keeps within the building appropriation. I think that is amply evidenced by the change in the law from 1902 to 1903, where formerly the number of buildings and the places where they were to be located were specified. The statute was changed to read "not less than," to give administrative discretion.

The CHAIRMAN. Is it your understanding that the moneys that have been expended in the construction of the plant at Mount Weather have been expended under appropriations such as you described?

Mr. McCABE. I could not answer as to a question of fact; I do not know.

The CHAIRMAN. This appropriation that you have referred to, which is substantially the language used in the appropriation bill for 1906, is the only authority you know of for the construction of the plant at Mount Weather?

Mr. McCABE. That is all there is.

The CHAIRMAN. Do you understand that in that appropriation—referring now to the one for 1906, because that is the one I have in my hand, contemplates a site and a building as a separate and independent project? "For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories;" is it your opinion that under that language at least five projects are contemplated to be provided for?

Mr. McCABE. It is.

The CHAIRMAN. And that the site and the building constitute one project?

Mr. McCABE. Not necessarily.

The CHAIRMAN. Well, why not?

Mr. McCABE. "For the purchase of sites and the erection of not less than five buildings." I think the Secretary, in his discretion, could purchase six sites and only erect five buildings.

The CHAIRMAN. That would be the foundation of six separate plants?

Mr. McCABE. That would be the start of them.

The CHAIRMAN. Would it be your opinion that under that language the Secretary would be authorized to purchase one site and to put six or seven buildings on that site?

Mr. McCABE. In one appropriation?

The CHAIRMAN. Yes, sir.

Mr. McCABE. I think he could.

The CHAIRMAN. Is it your idea that under this appropriation there are to be at least five sites?

Mr. McCABE. I think not.

(Witness: McCabe.)

The CHAIRMAN. Congress having provided an appropriation of \$53,000 for at least five projects, consisting of a site and building, and having provided for the equipment of those five stations, that would require at least five to be constructed under that appropriation?

Mr. McCABE. At least five, I should say.

The CHAIRMAN. So that on the average a project could not cost over, say, \$11,000?

Mr. McCABE. I do not think that follows.

The CHAIRMAN. The aggregate of the five must be under \$53,000?

Mr. McCABE. The aggregate of the five for a particular year must be within the appropriation.

The CHAIRMAN. That does not constitute any authority for any project other than the five within the limitation, five or six, as the case may be, other than at least five separate and independent projects to be within the limit of cost, \$53,000?

Mr. McCABE. All the buildings erected during one year must be, of course, within the limit of this appropriation.

The CHAIRMAN. All the projects authorized by that appropriation must be constructed within the limit of the \$53,000?

Mr. McCABE. I think so. We have here a provision that any money appropriated for the fiscal year 1906, \$53,000, to use your figures, which the Secretary has not deemed necessary to be used in building five of those buildings, he may use any part of the balance for the repair, alteration, or improvement of any plant the Department already has.

The CHAIRMAN. But that language does not authorize the creation of a new project?

Mr. McCABE. No, sir.

The CHAIRMAN. The language, as I understand you, "repair, improvement, and equipment," does not authorize new projects?

Mr. McCABE. I think not.

The CHAIRMAN. The new projects are authorized under the language, "For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories?"

Mr. McCABE. I think that is right.

The CHAIRMAN. Is it your judgment that under that appropriation they would be expected to erect and equip at least five stations within the limit of \$53,000?

Mr. McCABE. The Secretary must do that; it is mandatory.

The CHAIRMAN. There must be at least five within the limit of the \$53,000?

Mr. McCABE. Yes, sir.

The CHAIRMAN. Do you think that appropriation is authority for the creation of a plant that is to cost ultimately \$250,000 and which will take \$25,000 a year to maintain?

Mr. McCABE. The question of maintenance does not come into this particular appropriation.

The CHAIRMAN. Except as illustrating the size of the plant?

Mr. McCABE. Yes, sir. I really do not see how the question of the ultimate value of the plant has anything to do with this appropriation.

The CHAIRMAN. Your idea is that this appropriation does not contemplate completed projects?

Mr. McCABE. I have failed, apparently, to make myself plain. What I think this appropriation means—

The CHAIRMAN (interrupting). Your idea is that this appropriation does not contemplate completed projects?

Mr. McCABE. I think I can answer the question best in my own way.

The CHAIRMAN. Yes.

Mr. McCABE. There are two several parts of this appropriation. The first one is a mandatory direction to the Secretary of Agriculture to erect not less than five buildings to be used as Weather Bureau observatories.

The CHAIRMAN. Does that, in your judgment, contemplate the completion of those projects or observatories within the limit?

Mr. McCABE. Yes, sir; I think it does; completion for the time being.

The CHAIRMAN. What do you mean by "completion for the time being?"

Mr. McCABE. I mean that the appropriation evidently contemplates additions to those from time to time. That was the reason of the addition of these words in the fiscal year 1904:

Provided, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds.

My idea is this, that Congress appropriated \$53,000 and said to the Secretary of Agriculture:

"You must erect not less than five buildings out of this \$53,000, and if there is any of it left after you have erected the five buildings you may erect another one, if you please, or two more, if you please, or, having completed the five, you may take the rest of the appropriation and use it for the repair, improvement, or equipment of stations already existing."

The CHAIRMAN. Having completed the five projects?

Mr. McCABE. Yes, sir.

The CHAIRMAN. Is it your idea, then, that Congress contemplated the completion of at least five projects within the limit of the \$53,000?

Mr. McCABE. The five buildings.

The CHAIRMAN. I am speaking of the project as constituting the site and the building. Is it your understanding of the appropriation that the language contemplates the completion within the limits of the \$53,000 of at least five projects?

Mr. McCABE. Five buildings.

The CHAIRMAN. You understand the site and building to be one project?

Mr. McCABE. I do not know whether you would say one site and one building was one project.

The CHAIRMAN. Suppose we call them "stations" instead of "projects." Now, then, is it or not your judgment that the appropriation contemplates that there should be within the limit of the \$53,000 at least five stations or projects?

Mr. McCABE. Yes, sir.

(Witness: McCabe.)

The CHAIRMAN. Consisting of site and building?

Mr. McCABE. So far as the appropriation bill is concerned, but the Secretary under appropriations for subsequent years—the buildings erected in 1904 or 1905 under this appropriation—after complying with the direction to erect not less than five, if he has a balance left of \$20,000 he could apply that \$20,000 to the improvement or repairing of any station then existing.

The CHAIRMAN. But before he makes that application he must, in your judgment, complete at least five stations?

Mr. McCABE. Absolutely.

The CHAIRMAN. So your judgment is that this appropriation contemplates the completion of at least five stations within the limits of \$53,000?

Mr. McCABE. Yes, sir. I can not see how it could be construed otherwise.

The CHAIRMAN. I agree with you perfectly, and if there is any balance left over, what authority is there in this appropriation to use it for any purpose except in the repair, improvement, and equipment of any other buildings or grounds which are already completed?

Mr. McCABE. The authority is found in the wording of the act, which says, "For the purchase of sites and the erection." The Secretary, after completing five buildings, in my judgment, can purchase a site and build three more buildings, if he chooses, if he remains within the limit of the \$53,000.

The CHAIRMAN. After having completed the projects authorized by the appropriation within the limit of \$53,000, if there is any balance remaining, as I understand it, what authority is there for the expenditure of that balance except this proviso:

So much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds.

Mr. McCABE. Perhaps I do not understand the question. I can only repeat that—

The CHAIRMAN (interrupting). My question is this: After an appropriation like this, when the Secretary has completed all of the stations that he is required to complete or undertakes to complete within the limit of the appropriation, and there is still a balance of the appropriation unexpended, what authority is there under that appropriation for the use of that balance except such as is found in this proviso:

Provided, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, outside of the District of Columbia.

Is there any other authority for the expenditure of that balance except the proviso I have just read?

Mr. McCABE. I think the authority is found in the discretion conferred upon the Secretary by the first sentence.

The CHAIRMAN. He has exhausted that by fitting up the stations.

Mr. McCABE. And used up the \$53,000?

The CHAIRMAN. No, sir. There would not be anything for the proviso to act on, because the proviso says: "*Provided*, That if any of the money for these several buildings"—that is the \$53,000—

Mr. McCABE. Yes, sir.

The CHAIRMAN. "Remains unexpended," that is, after the Secretary has completed such projects as he is required, in your judgment, to complete, or sees fit to complete, under the first section of the act. If any of this money that is appropriated "remains unexpended for the special purposes for which it is appropriated"—the special purpose is the completion of the station—"so much of it as is necessary," that is, the money appropriated for the special purpose, "may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, outside of the District of Columbia." Let me give you an illustration. Suppose, for illustration, that under this particular appropriation, \$53,000, the Secretary has completed five stations, which he would be required to do according to your view of the act—at least five?

Mr. McCABE. Yes, sir.

The CHAIRMAN. And suppose that in the exercise of his discretion he did not see fit to build any others, which he would not be required to do, and it left in his hands, we would say, \$3,000 unexpended. Now, is there any authority for disbursing that \$3,000 unexpended and appropriated for that particular purpose, except the proviso to which I have just called your attention?

Mr. McCABE. I think not.

The CHAIRMAN. That must be disbursed under this clause, I assume, "for the repair, improvement, and equipment of any other buildings or grounds?"

Mr. McCABE. Yes, sir; construing the words "any other buildings" to mean buildings other than the five which he has completed.

The CHAIRMAN. Certainly. I imagine so, because these buildings would be new, and you would not predicate the idea of repairs and improvements on a newly completed structure.

The appropriation and the affirmative proposition of the proviso cover, so far as you know, all the authority that the Secretary would have under the circumstances for the erection of Mount Weather?

Mr. McCABE. That is all the law there is on that subject.

Mr. SAMUEL. Does the word "station" contemplate one or more buildings?

Mr. McCABE. In some cases one and in other cases several.

The CHAIRMAN. If I understand it aright—I do not know whether you are sufficiently familiar with the work in the Department to know about this—so far as you know at least, no appropriations have been utilized or used for the construction of the station or project or plant at Mount Weather, except such sums as have been appropriated under this provision of law?

Mr. McCABE. That is a question that I could not answer.

The CHAIRMAN (to Mr. Zappone). Do you know what the fact is in that respect?

Mr. ZAPPONE. The lump-sum appropriation for general expenses has also been used for the equipment of the station, the purchase of supplies, etc.

The CHAIRMAN. I mean construction?

Mr. ZAPPONE. Not original construction, no, sir; but some of the money under the appropriation for general expenses has been used

in making repairs. That we do all over the country. It is the only fund we have for repairs to our office quarters and buildings. We have about 200 stations. It is not used for original construction.

The CHAIRMAN. Where did the money for original construction come from—from appropriations like the one we have been discussing?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. The origin of the plant at Mount Weather occurred before your connection with the Department as solicitor?

Mr. McCABE. While I was connected with it as law clerk.

The CHAIRMAN. Were you employed as law clerk when the original expenditures were made?

Mr. McCABE. Yes, sir. That brings me up to this: Under this law the Secretary of Agriculture is to approve the plans and the specifications, and by the statute the work is to be done under the supervision of the Chief of the Weather Bureau. It is rather an unusual provision, and for that reason the matter was never submitted to me. I have never passed upon it one way or the other.

The CHAIRMAN. Either from the beginning or up to now?

Mr. McCABE. No, sir.

The CHAIRMAN. And whatever has been done in the Department has been done independently of you as solicitor?

Mr. McCABE. The question of expenditures from the appropriation under discussion has never been submitted to me.

The CHAIRMAN (to Mr. Zappone). I shall want to go over these expenditures with you, and will thank you to prepare a statement of them; also have with you the laws pertaining thereto. [To Mr. McCabe.] I find, on investigating in relation to the expenditure of \$268,172.71 for the eradication of scabies in sheep and cattle, that practically three-fifths of that sum was expended in the eradication of scabies and cattle in States entirely independent of the question as to whether they were a part of interstate commerce or were affected by the commerce clause in relation to the matter of transportation?

Mr. McCABE. That is true.

The CHAIRMAN. Has the attention of your Department ever been called to the question as to whether or not such expenditure was authorized?

Mr. McCABE. Yes, sir. It is authorized by the organic act of the Bureau of Animal Industry of May 29, 1884.

The CHAIRMAN. Does that in terms provide for investigation and the expenditure of money under conditions where the work has to be done by virtue of State authority?

Mr. McCABE. In terms:

Where the legally constituted authorities of any State shall adopt measures for the suppression and extirpation of contagious diseases of animals and shall certify those facts to the Commissioner of Agriculture—

It was the Commissioner then—

the Commissioner of Agriculture is authorized to cooperate with the State and to expend moneys appropriated for the Bureau of Animal Industry for the eradication of the disease in that State.

The CHAIRMAN. Although it has been construed under the State legislation and under virtue of power given by State law?

Mr. McCABE. Yes, sir. It is not a regulation of commerce.

The CHAIRMAN. Would it be your opinion that Congress could legally pass regulations that would authorize inspection and control, under those circumstances, independent of the interstate-commerce clause?

Mr. McCABE. There are so many constitutional lawyers now that I would like to be excused from being one.

The CHAIRMAN. Has the question of the legality or validity of that expenditure been a matter of discussion or opinion in your Department?

Mr. McCABE. Yes, sir; it was discussed.

The CHAIRMAN. You simply base your opinion upon the strict language of the statute?

Mr. McCABE. Upon the face of the statute, for this reason, that it is practically the only way in which you can eradicate the disease and indirectly protect interstate commerce.

The CHAIRMAN. You did not undertake to go into the constitutional question as to whether they had power to provide for that?

Mr. McCABE. We did not. We find that the accounting officers raise enough questions; we never raise any question of that character if we have the authority of Congress and the expenditures are necessary.

The CHAIRMAN. Please state the duties of your office.

Mr. McCABE. I do not know that I care to amplify the statement made in these hearings. Perhaps the most important thing I have to do is to prepare in some cases and in other cases to approve the regulations that are issued by the Secretary of Agriculture. Up to a few years ago the Department of Agriculture had no law officer, and as a lawyer yourself you know that the rules and regulations must be within the statute or they are absolutely void, and when you get a case in court you can not stand on them. And it is a fact that up to a few years ago the Department of Agriculture had never succeeded in winning a case and had never succeeded in pushing a prosecution for a violation of the law or regulations to a successful conclusion.

The great trouble was that their regulations were framed by laymen, and when they would get into court you could drive a team through them. Now, under the Bureau of Animal Industry, particularly the meat-inspection part, where it says the rules and regulations shall have the force and effect of law, under the appropriation and law for the eradication of contagious diseases and the inspection of cattle in interstate commerce, and under the pure-food law, it is part of the duties of my office to prepare, examine, and approve, in advance of issue, all those regulations. I consider that one of the most important functions of the office.

The CHAIRMAN. That, when once performed, would not have to be repeated. There may be amendments?

Mr. McCABE. Yes; the regulations have to be accommodated to the circumstances. For instance, in the inspection of southern cattle we are trying to push the lines down farther south until finally we will have eradicated the disease.

Thereupon the committee adjourned to meet on Thursday, January 17, 1907, at 10 o'clock a. m.

(Witness: Zappone.)

THE COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
Saturday, January 19, 1907.

The committee this day met.

Present: Messrs. Littlefield (chairman), Samuel, and Flood.

ADDITIONAL STATEMENT OF MR. A. ZAPPONE, CHIEF OF DIVISION OF ACCOUNTS AND DISBURSING CLERK.

The CHAIRMAN. Have you the various appropriations containing the items in relation to weather stations from 1902 up to date?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. The station at Mount Weather, as I understand, was started under the appropriation for 1902?

Mr. ZAPPONE. No, sir; 1903—the fiscal year 1903.

The CHAIRMAN. The fiscal year 1903?

Mr. ZAPPONE. The buildings were begun in the fall of 1902.

The CHAIRMAN. In the fall of 1902?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Under the appropriation for 1903?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. That is the fiscal year ending June 30, 1903?

Mr. ZAPPONE. The fiscal year ending June 30, 1903.

The CHAIRMAN. So there was no construction of any kind begun under the appropriation for 1902?

Mr. ZAPPONE. No, sir.

The CHAIRMAN. Have you the appropriation for weather stations for 1902 before you?

Mr. ZAPPONE. Yes, sir. [Referring to act.] It begins at the bottom of page 3 and goes over to the next page.

The CHAIRMAN. The appropriation for 1902, with reference to weather stations, provided:

For the purchase of a site and the erection of a small brick and wood building at each of the following-named places, for use of the Weather Bureau, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture.

and then specified the places and fixed the amount at each place?

Mr. ZAPPONE. It did, sir.

The CHAIRMAN. So that was an appropriation for specific stations at specific sums?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. In 1903 a change was made and you had an appropriation reading:

For the purchase of sites and erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses; plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstaffs, and storm-warning towers, to properly equip these stations, \$50,000.

It was under this appropriation that the construction at Mount Weather was begun?

Mr. ZAPPONE. It was.

(Witness: Zappone.)

The CHAIRMAN. How many stations were constructed under that appropriation for the fiscal year 1903? Give the names of the stations and the cost of each.

Mr. ZAPPONE. Amarillo, Tex., \$7,758; Key West, Fla., \$10,014.75; Modena, Utah, \$4,346; Sand Key, Fla., \$5,593; Southeast Farallon, Cal., \$5,211.22; Mount Weather, Va., administration observatory, \$15,177.03; stable at Mount Weather, \$1,900; total, \$50,000, being the full amount of the appropriation. There was no balance to turn back into the Treasury.

The CHAIRMAN. Have you the appropriation for 1904?

Mr. ZAPPONE. Yes, sir. [Referring to act.] You will find that particular appropriation at the bottom of page 3.

The CHAIRMAN. The appropriation reads as follows:

Buildings, Weather Bureau: For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations: *Provided*, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, fifty thousand dollars.

That is the first time the proviso appears?

Mr. ZAPPONE. That is the first year in which the proviso appears.

The CHAIRMAN. How many stations were built under that appropriation, where, and at what cost?

Mr. ZAPPONE. Stations were built and buildings were repaired, as follows: Devils Lake, N. Dak., \$9,035.55; Duluth, Minn., \$9,472.38; Hatteras, N. C., for purchase of additional ground, the building having been erected in 1902, \$106.75; Havre, Mont., \$6,882.08; Yellowstone Park, Wyo., \$11,156; Mount Weather, Va., administration observatory (purchase of additional land, \$449.25; improvements and repairs to building, \$3,140.44), total, \$3,589.69; Mount Weather, Va., power house and balloon observatory (cost of site \$650; cost of building, \$7,540), total cost, \$8,190; Mount Weather, Va., water tower and tank, \$1,567.55. The total expenditures under this appropriation were therefore \$50,000, which completely exhausted the appropriation.

The CHAIRMAN. Did you build five stations under that appropriation that year?

Mr. ZAPPONE. Yes, sir; more than five.

The CHAIRMAN. Does that count Mount Weather in as a new station or as a continuation of an old one?

Mr. ZAPPONE. It is counted in as a new station, if I counted it correctly.

The CHAIRMAN. Devils Lake, Duluth, Havre, and Yellowstone Park are four. Those are the four completed stations erected under the appropriation for that year. Then there was \$3,589.69, \$8,190, and \$1,567.55 used for the continuation of the construction of Mount Weather?

Mr. ZAPPONE. The new building or station at Mount Weather was the power house and balloon observatory.

(Witness: Zappone.)

The CHAIRMAN. Is that a continuation of the plant?

Mr. ZAPPONE. It is original construction. It is a continuation of the general plan outlined when the work first started; or, say, a continuation of the general plant.

The CHAIRMAN. A continuation of the general plant started under the fiscal year 1903?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. In other words, it is not the completion of a station like Devils Lake, which provided for a site and building?

Mr. ZAPPONE. It is the completion of a building as required by the law.

The CHAIRMAN. That is a matter of opinion. Is it the completion of a station such as is provided for in the appropriation for the purchase of sites and the erection of buildings?

Mr. ZAPPONE. I think so.

The CHAIRMAN. According to the opinion of your solicitor the law provides for the completion of a station consisting of a site and building. Was the money spent at the Mount Weather plant for the purpose of the completion of a station consisting of a site and building?

Mr. ZAPPONE. I did not understand that to be the solicitor's statement.

The CHAIRMAN. Assuming that it was?

Mr. ZAPPONE. Assuming that it was, I should say that that made a completed site or plant—that is, a completed station, for, in my judgment, each new building erected there is in itself a completed station, as I interpret the law.

The CHAIRMAN. What was your idea about the continuation you spoke of a moment ago?

Mr. ZAPPONE. As to the continuation, I think it is perfectly proper under this law to add buildings year by year to the general plant or project which was originally begun in 1903.

The CHAIRMAN. Are the buildings that are added a continuation of the original plant, or are they separate and completed buildings themselves?

Mr. ZAPPONE. They are both; both a continuation of the general plant as mapped out by the scientists of the Weather Bureau and also completed stations.

Mr. FLOOD. Each building is a station?

Mr. ZAPPONE. Yes, sir; each building is a station. We refer to them as stations, just as the light-house people refer to their buildings as stations.

Mr. FLOOD. There may be more, as there is more than one station at Mount Weather?

Mr. ZAPPONE. There may be more than one. As a matter of fact, there are eight or nine there, and taken collectively they make up this general plant.

The CHAIRMAN. According to that, when Congress provides for a separate station there can be any number of buildings at that station?

Mr. ZAPPONE. Yes, sir; because Congress has not specified the number.

The CHAIRMAN. When they provide for a site and building for observatory purposes and call that a station, under that amount of appropriation the Secretary of Agriculture can add any number of stations right in one place?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. When was the site at Mount Weather purchased, in 1903 or in 1904?

Mr. ZAPPONE. The fiscal year 1903.

The CHAIRMAN. Was it all purchased at one time?

Mr. ZAPPONE. No, sir; it was purchased in two or three installments. The main purchase of about 75 acres was made in 1903. Ten additional acres were purchased in 1904 for the power house and balloon observatory. In addition, there were two other small purchases made for the protection of the Government reservation and its improvement. One man owned a strip of land passing through the reservation which was used by him as a roadway. I understand that, under the laws of Virginia, every man is entitled to an outlet from his property. You can not close him in; he reserves a roadway. The Government found that this roadway would come between two of its buildings, and bought it so as to preserve the integrity of the reservation, the man taking a roadway in another direction. The last strip acquired, the records disclose, was for the protection of a spring on the Government reservation.

The CHAIRMAN. What year was that?

Mr. ZAPPONE. I think that was in the same year, the fiscal year 1904.

The CHAIRMAN. Does that include the administration observatory lot or the other one?

Mr. ZAPPONE. The administration observatory lot was a part of the original purchase.

The CHAIRMAN. Did these purchases in 1904 complete the purchase of land that the Government now owns over there?

Mr. ZAPPONE. It did, making about 90 acres in all. The protection of the spring became necessary because it was very close to our boundary line. We feared that the adjoining property owner might drive a well on his land above us and divert the water.

The CHAIRMAN. Destroy the spring?

Mr. ZAPPONE. Yes, sir. Without letting him know what our intention was we secured a few additional acres to protect the Government spring.

The CHAIRMAN. The expenditure of \$106.75 at Hatteras, N. C., was to provide an addition to the lot that had previously been purchased by the Government?

Mr. ZAPPONE. That was somewhat similar to what I have just explained at Mount Weather. There was a boundary line in doubt, and the Government thought it advisable to purchase this small amount of additional land.

The CHAIRMAN. Did these various sums carried out against Devils Lake, Duluth, Havre, and Yellowstone Park complete the construction and equipment of those stations?

Mr. ZAPPONE. They did complete the construction of the stations, but not always the equipment.

(Witness: Zappone.)

The CHAIRMAN. The appropriation provides—

For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstaffs, and storm-warning towers to properly equip those stations. * * *

Did that not mean to cover those items?

Mr. ZAPPONE. It did not. As a matter of fact, that covers a very small amount of equipment. The equipment of these stations, if I recall correctly, was made from both funds, the general-expense fund and the building fund, just as has been done at Mount Weather, and which we will reach later.

The CHAIRMAN. Have you the items applied to equipment during these various years?

Mr. ZAPPONE. I have as regards Mount Weather. I did not know that you would want it for any other place.

The CHAIRMAN. About what sum was it necessary to expend in order to equip the stations provided for in the appropriations for 1903 and 1904, per station?

Mr. ZAPPONE. At all of the stations which have been named?

The CHAIRMAN. Yes, sir.

Mr. ZAPPONE. I can not give you that without reference to the records, because they were equipped from both funds, and it would be impossible without going back and digging out the accounts in detail.

The CHAIRMAN. You can give us a memorandum?

Mr. ZAPPONE. I thought that you only wanted the information in regard to Mount Weather, which would settle any question at issue, so I did not take up the question at any other station. I think if you will defer this until we discuss Mount Weather perhaps you will not need it. If you do, we can go back to it. I suggest that we continue with the appropriation bills.

The CHAIRMAN. Let us have the appropriation bill for 1905. It is just like the other one?

Mr. ZAPPONE. Yes, sir; there is no difference.

The CHAIRMAN. The appropriation for 1905 is exactly like that for 1904, except that there is an appropriation of \$48,000 for five stations, instead of \$50,000 for five stations.

Please state now the number of stations constructed under the appropriation for 1905.

Mr. ZAPPONE. They are as follows: Columbia, S. C., \$12,964; Devils Lake, N. Dak., improvements and repairs to buildings, \$605; Nantucket, Mass., \$4,728.53; Oklahoma, Okla., improvements and repairs, \$344.53; Peoria, Ill., \$7,929.50; Mount Weather, Va., absolute magnetic observatory, \$7,000; variation magnetic observatory, \$8,904.55; barn, \$900; farm house, improvements and repairs, \$1,300; power house, improvements and repairs, \$627; administration observatory, improvements and repairs, \$2,500; total \$47,803.11, of which amount \$21,231.55 was comprised in the Mount Weather expenditures, leaving an unexpended balance of \$196.89.

The CHAIRMAN. Outside of Mount Weather, which is of course subject to the same suggestion you have made in relation to 1904, with reference to completion and continuation, there were three stations that were completed under the appropriation for 1905, that is, Columbia, Nantucket, and Peoria. Am I correct?

Mr. ZAPPONE. You are, sir.

The CHAIRMAN. Do these sums that you have stated as being the cost of grounds and buildings in the case of those three stations include the equipment, or were some additional sums necessary for the purpose of providing the equipment for those three stations?

Mr. ZAPPONE. I can not say without reference to the records; I think that some additional amount was expended in that way.

I would like to add here, for the information of the committee, that the cost of equipping a Weather Bureau station varies from \$2,500 to \$5,000, according to the importance of the station.

The CHAIRMAN. The cost of equipping?

Mr. ZAPPONE. The cost of equipping. They are divided into stations of the first, second, and third class, according to the importance of the city and the number of men on duty at the station. The importance and class determine the instruments and equipment, especially the instruments, as the automatic instruments are very expensive, and a full set of them is only sent to a first-class station.

The CHAIRMAN. Take up the appropriation for 1906.

Mr. ZAPPONE. The appropriation for 1906 is practically like that for 1904 and 1905.

The CHAIRMAN. It is exactly like that of 1904 and 1905, except that there is this additional proviso:

And provided further, That a portion of the Federal building site at Springfield, Ill., fronting 90 feet on Monroe street and extending back at that width 160 feet along Seventh street to paved alley, may be used as a site for one of the five buildings proposed above, and it is hereby transferred to the Department of Agriculture for that purpose, \$53,000.

With that exception it is identical?

Mr. ZAPPONE. With that exception it is identical.

The CHAIRMAN. Please give us the expenditures under that appropriation.

Mr. ZAPPONE. The buildings erected under the appropriation for the fiscal year 1906 are as follows: Bentonville, Ark., \$5,619.90; Burlington, Vt., \$10,063.50; Oklahoma, Okla., \$10,214.62; North Platte, Nebr., \$3,818.50; Springfield, Ill., \$10,236.50; Mount Weather, Va., physical laboratory observatory (partial work), \$12,795.41; total, \$52,748.43; unexpended balance turned back into the Treasury, \$251.57.

You will notice that in some cases the Government has purchased sites, and in other cases sites have been donated or we have used Government reservations, believing that a site and building are not necessary under the law. That is, a station need not necessarily be considered as both a site and a building.

The CHAIRMAN. For the year ending June 30, 1906, there were five stations completed so far as their construction and the purchase of sites were concerned?

Mr. ZAPPONE. There were, and in addition the physical laboratory

(Witness: Zappone.)

at Mount Weather was begun with the balance remaining, and the amount named, \$12,795.41, was expended.

The CHAIRMAN. Does the amount expended under this appropriation include all the expenditures on the part of the Government for plans and specifications? That is, are the plans and specifications included in these items?

Mr. ZAPPONE. They are; and also all miscellaneous labor.

The CHAIRMAN. Do the sums for the cost of the buildings and grounds include the commissions paid to the architects for the drawing of plans and specifications and the supervising of the construction?

Mr. ZAPPONE. They do.

The CHAIRMAN. With the exception of the items to which you have referred, do the sums that you have mentioned include the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers?

Mr. ZAPPONE. Only a small part.

The CHAIRMAN. Is the expenditure for furniture included in the items you have just given?

Mr. ZAPPONE. I think not.

The CHAIRMAN. Has furniture been purchased outside of this appropriation?

Mr. ZAPPONE. Yes; furniture and other supplies have been purchased out of the general-expense appropriation.

You might take up the appropriation bill for 1907. I think that enters into this. I have the figures up to January 10, 1907, the date of Professor Moore's testimony that the total sum expended up to that time was about \$130,000. I think we will have a more intelligent understanding of the matter if we work on that basis.

I would like to call your attention to the fact that the appropriation for the fiscal year 1907 differs; there is a very radical change which broadens the authority of the Secretary of Agriculture. That is, he is directed under that law to expend the money in erecting not more than five buildings—notice the words, "not more than." He could use the whole amount on one building if he so elected.

Mr. SAMUEL. What was the previous appropriation?

Mr. ZAPPONE. In other appropriations he has been required to erect "not less than" a number named. In this appropriation he is required to erect "not more than five buildings," meaning that he can erect one or more up to five, but can not erect more than five. So you see the authority has been very much broadened for the current fiscal year, 1907.

The CHAIRMAN. Is there any distinction between this and the other appropriations except in the use of the word "more" in place of the word "less"?

Mr. ZAPPONE. Not in that particular appropriation that you are reading from, "Buildings, Weather Bureau." Under "General expenses, Weather Bureau," Congress has also provided for the erection—

The CHAIRMAN (interrupting). We had better take that up later.

Mr. ZAPPONE. I wish you would let me finish. This is all relevant to this subject. In the appropriation for general expenses for the fiscal year 1907 Congress has also authorized the Secretary of Agri-

(Witness: Zappone.)

culture to erect buildings and to furnish and equip them. In other words, the law for the fiscal year 1907 was not only made broader in the special appropriation for buildings, but in the general appropriation which we term "General expenses, Weather Bureau," he is also directed to do the very same acts and erect buildings. That has a very important bearing on this and I desire to call it to your attention. It reads as follows:

* * * including the purchase of ground and the erection, under the supervision of the Chief of the Weather Bureau, of not to exceed four additional observatory buildings, including the purchase of stationery, furniture, instruments, storm-warning towers, and all other necessary supplies and materials.

* * *

You will notice that this is a duplication of the law as it refers to buildings in both appropriations.

The CHAIRMAN. This is for the fiscal year 1907?

Mr. ZAPPONE. Yes, sir; the current fiscal year; this year we can erect buildings out of both appropriations. I want to lay special stress on that, because it bears on the other matter we will have to discuss later.

The CHAIRMAN. Does our list of expenditures cover the expenditures for 1907?

Mr. ZAPPONE. The actual expenditures up to January 10, at Mount Weather, and the estimated expenditures for the other buildings, were as follows: Anniston, Ala., \$10,300; Iola, Kans., \$10,500; Sandy Hook, N. J., \$9,700; Mount Weather, Va., physical laboratory observatory, \$8,000; Mount Weather, Va., cottage for office and residence, \$3,800; total, \$42,300; leaving an estimated balance of \$10,700.

The CHAIRMAN. During the fiscal year 1906, how much money has been expended and contracted for in connection with the Mount Weather observatory?

Mr. ZAPPONE. Out of both funds?

The CHAIRMAN. The gross amount. Have you the aggregate of the amount under the appropriations we have just been examining?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. What is that aggregate?

Mr. ZAPPONE. The aggregate from the building fund to June 30, 1906, is \$64,451.23.

The CHAIRMAN. Now give the aggregate under the other appropriation we have been discussing.

Mr. ZAPPONE. To June 30, 1906?

The CHAIRMAN. Yes.

Mr. ZAPPONE. The aggregate under the appropriation for general expenses is \$76,128.30, making a total of \$140,579.53 to June 30, 1906.

The CHAIRMAN. Have you at hand, so that we can have it right there, the expenditures up to date which would include the expenditures for the year 1907?

Mr. ZAPPONE. I have.

The CHAIRMAN. What is it?

Mr. ZAPPONE. The total amount expended for buildings from July 1, 1902, to January 10, 1907, is \$76,251.23. The total amount expended during the same period from the appropriation for general expenses is \$84,842.03.

(Witness: Zappone.)

The CHAIRMAN. That is how much during 1907?

Mr. ZAPPONE. Making a total of \$161,093.26.

The CHAIRMAN. That is about \$20,514 for the year 1907?

Mr. ZAPPONE. Yes, sir; there was expended in the present fiscal year, 1907, \$20,513.73.

The CHAIRMAN. Can you state when the first expenditures were made under the head of "General expenses, Weather Bureau," and give us the expenditures year by year?

Mr. ZAPPONE. You wish the total amount spent each year under the head of "General expenses, Weather Bureau?"

The CHAIRMAN. Yes; and give the language of the appropriation under which those expenditures were made.

Mr. ZAPPONE. In the fiscal year 1903 the sum of \$4,980.99 was expended from the appropriation "General expenses, Weather Bureau," under the following language in the law:

* * * for rents and other incidental expenses of offices maintained as stations of observation * * *

Also the following:

* * * for aerial observations and reports * * *

In that year the authority was not as broad as in subsequent years; and in that connection, and before we go any further, I would like to read a few decisions of the Comptroller on the subject of appropriations being cumulative where two or more practically cover—

The CHAIRMAN. Suppose you state right there what that sum was expended for—that is, what was done with it at Mount Weather.

Mr. ZAPPONE. That sum was expended as follows: Apparatus, machinery, implements, etc., \$4,140.69; miscellaneous supplies, equipment, fuel, forage, etc., \$60.43; hauling supplies, equipment, fuel, forage, etc., \$38.75; construction of telegraph and telephone lines, repairs, etc., \$741.12; making a total of \$4,980.99.

The CHAIRMAN. Have you the voucher under which the item of \$4,140.69 was approved?

Mr. ZAPPONE. That is made up of a number of vouchers. I do not know whether I have a voucher pertaining to that particular year, but I have an illustrative voucher here for the purchase of instruments, which I think will answer your purpose.

The CHAIRMAN. This is the same as the vouchers for this year?

Mr. ZAPPONE. There are several of these, and they are the same as the vouchers for any year [presenting vouchers]. They are prepared along the same lines. Most of this apparatus had to be obtained from abroad. As the Chief of the Weather Bureau explained, it is the best apparatus in the world. It must be, on account of the character of the research observations that they were about to make at Mount Weather.

The CHAIRMAN. Then it is enough to say, if it is true, and I presume it is, that all of the vouchers under the items aggregating \$4,140.69 showed on their face that they were either for apparatus, machinery, or implements, as the sample vouchers that you have submitted show?

Mr. ZAPPONE. Undoubtedly.

The CHAIRMAN. And the voucher for the construction of the telegraph and telephone lines and repairs, \$741.12, showed that that was for construction of telegraph lines?

(Witness: Zappone.)

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. I see repairs are mentioned there. Is not that the first year when the telegraph and telephone lines were constructed—1903? That is the first year that any expenses were incurred, is it not?

Mr. ZAPPONE. Yes; but a storm ten days after the lines are erected is enough to make repairs necessary.

The CHAIRMAN. I suppose these repairs must have been of a minor character?

Mr. ZAPPONE. Yes; they were small.

The CHAIRMAN. Let us have the appropriation for 1904 and the sums that were paid under that appropriation.

Mr. ZAPPONE. The amounts expended during the fiscal year 1904 from the appropriation for "General expenses, Weather Bureau," were as follows:

Repairs to buildings, in connection with their maintenance, including installation of instruments, \$1,169.77; building fences, making walks and roadways, improving grounds, etc., \$509.45; apparatus, machinery, implements, etc., \$2,259.10; miscellaneous supplies, equipment, fuel, forage, etc., \$1,103.63; hauling supplies, equipment, fuel, forage, etc., \$425; horses, wagons, and repairs, \$619.25; construction of telegraph and telephone lines, repairs, etc., \$201.10; total, \$6,287.30.

The CHAIRMAN. The equipment referred to in this list and in the list for 1903 is the same equipment that is mentioned in the language of the appropriation for 1903, where it is provided to properly equip these stations, I suppose, is it not?

Mr. ZAPPONE. I think so. The articles purchased would no doubt very properly come under that head, but they might come under some other head. The word "equipment" covers a pretty broad field.

The CHAIRMAN. When you use the word "equipment" there, is it used as synonymous with the expression to properly equip stations?

Mr. ZAPPONE. Yes, sir; it is used synonymously, but in a comprehensive sense. It is a general term added to the language of the appropriation bill, I should say, just as they name certain things, and then finish up with the word "equipment," just as you would say "and so forth." It is to cover things that may not have been thought of.

The CHAIRMAN. Will you call attention to the language of the appropriation under which these disbursements were made?

Mr. ZAPPONE. The language of the appropriation under which the expenditures for the fiscal year 1904 were made—that is, the appropriation for general expenses, Weather Bureau—is as follows:

Every expenditure requisite for and incident to the establishment, equipment, and maintenance of meteorological observation stations in the United States,
* * *

That language is as broad as that of any law that has ever been written; at least so it appears to me. I would like to repeat it:

Every expenditure requisite for and incident to the establishment, equipment, and maintenance of meteorological observation stations in the United States,
* * *

And then further along in the same law you will find these words:

* * * for aerial observations and reports; * * *

The whole plant at Mount Weather is for aerial research—aerial observations.

(Witness: Zappone.)

The CHAIRMAN. Would that language "for aerial observations and reports," in your judgment, simply cover the cost of making the observations and reports, or would that authorize the building of a building for making the observations?

Mr. ZAPPONE. It would not authorize the erection of a building because that is prohibited by a general statute. The erection of all buildings is prohibited by a general statute, except when they are specifically appropriated for by Congress. (Sec. 3734, Rev. Stat.) But we could do all the other things under this appropriation. We could employ labor or purchase supplies under those words. Or, if we were using a small building in connection with these observations, we could repair it; but we could not erect a new building. There is nothing in the appropriation "General expenses of the Weather Bureau" that provides for the erection of a new building such as can be termed a public building. It does provide for the erection of shelters and sheds and things of that sort that are necessary for the protection of instruments or the protection of tools.

The CHAIRMAN. Does the Weather Bureau have any buildings that it erects outside of these buildings connected with the observatory stations?

Mr. ZAPPONE. Every building that the Weather Bureau erects may properly be termed a Weather Bureau station or observatory. There is no other class of building that I know of.

The CHAIRMAN. You do not erect any others than at the stations?

Mr. ZAPPONE. No; no others than at the stations. At least—I do not quite understand your question, Mr. Chairman.

The CHAIRMAN. Does the Weather Bureau erect any buildings except the buildings that they erect at these stations?

Mr. ZAPPONE. At what stations?

The CHAIRMAN. The observatory stations.

Mr. ZAPPONE. No; none except at those stations, and for use as meteorological observatories. I know of no other class of buildings. They are either directly in connection with the taking of the meteorological observations, or else they are coordinate or closely related thereto. I do not know of any other class of buildings that could be erected under that law.

The CHAIRMAN. Do they erect any outside of those sites? A station consists of a site and a building for this purpose. Are there any other buildings erected by the Weather Bureau, or that are used by the Weather Bureau, that are independent of these sites and buildings?

Mr. ZAPPONE. Oh, yes; they may erect a building on a site that belongs to another branch of the Government; what we call a Government reservation.

The CHAIRMAN. Yes; but it is an observatory, is it?

Mr. ZAPPONE. It will be for an observatory.

The CHAIRMAN. Yes.

Mr. ZAPPONE. I am trying to grasp just what you mean, Mr. Chairman. I do not know that I do so fully.

The CHAIRMAN. I will ask you this. Has the Weather Bureau ever erected any buildings anywhere except for observatory purposes?

Mr. ZAPPONE. No, sir; never without specific authority of law. It has erected shelters, as I have already said, for the protection of

instruments, or a shed for the protection of tools, but those structures are not classed as buildings.

The CHAIRMAN. That is in connection with the observatory?

Mr. ZAPPONE. Yes; that is in connection with an observatory.

The CHAIRMAN. Now, let us have the expenditures for 1905. First give us the appropriation, or you can give it as you like, either the disbursements and expenditures and then follow it by the appropriation, or the appropriation first.

Mr. ZAPPONE. I will give the expenditures first, so as to preserve the order in which we have been stating them. The expenditures for the fiscal year 1905 from the appropriation "General expenses, Weather Bureau," are as follows:

Repairs to buildings in connection with their maintenance, including installation of instruments, \$4,319.14; building fences and making walks and roadways, improving grounds, etc., \$5,187.60; apparatus, machinery, implements, etc., \$15,801.62; miscellaneous supplies, equipment, fuel, forage, etc., \$10,897.06; hauling supplies, equipment, fuel, forage, etc., \$3,655.20; horses, wagons, and repairs, \$311.64; construction of telegraph and telephone lines, repairs, etc., \$836.20; total, \$41,008.46; kite shelter, \$1,738.69; making a total in all of \$42,747.15.

I wish to say in connection with the kite shelter, Mr. Chairman, that that is the shelter that Professor Moore referred to in his testimony as a kite building.

The CHAIRMAN. And as revolving on an axis?

Mr. ZAPPONE. Yes. It is not a building. It is a shelter, pure and simple, and contains nothing but instruments, as he explained to you. It can not be used for living purposes. It had to be erected under specifications prepared by the Bureau, and it was decided at that time that it was nothing more than a shelter. It has never been regarded as a building, and one of the annual reports will show that. Professor Moore was speaking generally in his testimony when he called it a building; he had not the figures nor the data before him which I have collected here from the records.

Mr. SAMUEL. In fact, it is the same thing, a shelter and building?

Mr. ZAPPONE. No, sir; I wish to differentiate and show that it is not the same. It is a shelter.

The CHAIRMAN. Will you tell us the appropriation under which these expenditures were made?

Mr. ZAPPONE. The appropriation under which these expenditures were made reads the same as that for the preceding year:

Every expenditure requisite for and incident to the establishment, equipment, and maintenance of meteorological observation stations in the United States. * * *

Also the words:

* * * for aerial observations and reports. * * *

The CHAIRMAN. So that it is a duplicate?

Mr. ZAPPONE. It is the same as the preceding year.

The CHAIRMAN. Calling your attention to the item of \$4,319.14 for repairs to buildings, and so forth, what proportion of that was used for repairs, and what were the repairs?

Mr. ZAPPONE. I should say that about one-third of this amount was expended for repairs to buildings. The principal part of the balance was expended for the installation of instruments. You will

(Witness: Zappone.)

notice in that fiscal year the instruments—machinery and instruments—cost \$15,801.62, and naturally there was a great deal of work in connection with their installation.

I have here an illustrative account for repairs to buildings. This is an account of Church & Stephenson for lumber, \$469.14, and, as stated in the certificate, for use of station at Mount Weather, in repairing Weather Bureau buildings, one of which was damaged by fire. There was also a very heavy storm up there one year, which necessitated extensive repairs. In addition to these other repairs were necessary, which came under the head of maintenance. Naturally we must keep up these buildings from year to year.

Prior to 1903, the first year under discussion, we had no fund from which repairs to buildings could be made except the fund for general expenses, Weather Bureau; and, of course, there were expenses incurred in those early years for repairs to buildings. I have with me one or two vouchers of this character. Here is one in the latter part of 1903 at Sault Ste. Marie, Mich., and another in the next year at the same station.

The CHAIRMAN. Is there anything on these vouchers which shows the appropriations against which they are drawn?

Mr. ZAPPONE. Yes, sir; on each and every voucher the appropriation is indicated on the brief fold; if you will turn the voucher over, you will see it.

The CHAIRMAN. It is in the little circle, the appropriation for general expenses?

Mr. ZAPPONE. Yes, sir. Now, take up this appropriation for the kite shelter at Mount Weather. This voucher is for the construction of a shelter [presenting voucher]. The purchase of the track was made from another firm, and, by the way, they had great difficulty in finding a firm who could properly construct it. It was necessary for one of the officials of the Weather Bureau to go to Cleveland, Ohio, explain the work, and go over it in detail. The cost of the track was \$600. And this voucher [exhibiting same], you see, reads also "for the use of station at Mount Weather, Va."

The CHAIRMAN. Those two items include the bulk of the expense for the kite shelter?

Mr. ZAPPONE. They include the bulk of the expense. I might add that there is also another small instrument shelter at Mount Weather which was constructed in either 1904 or 1905, at a cost of about \$75 or \$100. I merely mention this to show that the construction of instrument shelters is necessary at each one of our Weather Bureau stations. It is either constructed at the station or received in sections from the central office here to be assembled after its arrival. I wish to repeat my statement that the Mount Weather kite shelter is not a building, but is simply a shelter for the protection of the instruments contained therein. It revolves on a track, as Professor Moore explained; the shelter is about 18 feet in diameter.

Mr. SAMUEL. It is not a building, as you understand it, in the sense as implied by the appropriation bill?

Mr. ZAPPONE. As I understand it, this is not a building in the sense the word is employed in the appropriation "Buildings for Weather Bureau;" it is simply a shelter, and it is a proper charge against the appropriation for general expenses of the Weather Bu-

(Witness: Zappone.)

reau, which has been used for the construction of all shelters in past years. I will add, however, there has been no shelter that has previously cost as much as this one, nor has there been any necessity for such a shelter. This being for research or aerial work, it had to be made large, as it was necessary to install a reel, on which there are a great many miles of wire. There is also an instrument for measuring the altitude or height to which the kites ascend, and also another instrument for taking the temperature, in addition to a motor for operating the reel.

Mr. SAMUEL. Why do you use the word "shelter" instead of "building?"

Mr. ZAPPONE. We use the word "shelter" instead of "building" because it shelters or protects the apparatus that is contained in the structure. It is not a structure to be used for living purposes or for the housing of animals or for storage or anything of that sort. It is solely and purely for the shelter and protection of the instrumental apparatus contained therein.

The CHAIRMAN. Have you anything further to say in connection with those appropriations that will enlighten the committee?

Mr. ZAPPONE. Mr. Chairman, that takes in all of the items in the fiscal year 1905 that we have had under discussion and explains the character of the work under each. I have submitted illustrative accounts which appear either in this record or have been handed personally to the chairman for his examination.

In this connection I would also like to hand to the chairman an illustrative account for hauling supplies, an account for the hire of teams, and still another account for the purchase of a large 35-horsepower gasoline engine which was installed in the power house and balloon building at Mount Weather. The cost of this engine was \$1,915. In this particular instance the account was not paid by the disbursing officer of the Department, as the money had lapsed to the appropriation. The account was sent to the Treasury Department for settlement, and a settlement was made direct by that Department. This seems to indicate still further that all such expenditures made out of the appropriation for general expenses were proper.

In this connection I shall read several decisions of the Comptroller, but not until we get through with the consideration of the expenditures for general expenses for the various fiscal years.

Mr. SAMUEL. Proceed with the expenditures for 1906.

Mr. ZAPPONE. The expenditures from the appropriation for general expenses, Weather Bureau, during the fiscal year 1906, were as follows:

Repairs to buildings in connection with their maintenance, including installation of instruments -----	\$1, 972. 94
Building fences making walks and roadways, improving grounds, etc -----	2, 817. 81
Apparatus, machinery, implements, etc -----	10, 608. 16
Miscellaneous supplies, equipment, fuel, forage, etc -----	3, 751. 74
Hauling supplies, equipment, fuel, forage, etc -----	2, 338. 88
Horses, wagons and repairs -----	460. 66
Construction of telegraph and telephone lines, repairs, etc -----	162. 92
Total -----	22, 113. 11

(Witness: Zappone.)

The language of the law under which these expenditures were incurred is similar to that for the preceding year, and reads:

Every expenditure requisite for and incident to the establishment, equipment, and maintenance of meteorological observation stations in the United States

And in addition are the following words:

* * * for aerial observations and reports; * * *

Passing to the next fiscal year, 1907, so far as the expenditures are concerned for the period from July 1, 1906, to January 10, 1907, the date on which Professor Moore stated that the total expenditures incurred to that time at Mount Weather, Va., were about \$130,000, I will state that the expenditures from the appropriation for general expenses were as follows:

Repairs to buildings in connection with their maintenance, including installation of instruments.....	\$1,960.90
Building fences, making walls and roadways, improving grounds, etc.....	1,649.77
Apparatus, machinery, implements, etc.....	960.49
Miscellaneous supplies, equipment, fuel, forage, etc.....	2,262.92
Hauling supplies, equipment, fuel, forage, etc.....	1,782.89
Horses, wagons, and repairs.....	75.56
Construction of telegraph and telephone lines, repairs, etc.....	21.20
Total	8,713.73

Returning to the amounts set aside for buildings, 1907, I wish to say that they are estimated. No building has been contracted for, nor has any construction been started to this date, except at Mount Weather; but the other places at which it is proposed to erect buildings, provided reasonable bids can be obtained, are Anniston, Ala., Iola, Kans., and Sandy Hook, N. J. As Professor Moore stated, the appropriation act for the fiscal year 1907 authorizes the Secretary of Agriculture to erect not more than five buildings. He has planned to erect five buildings, but as a matter of fact he might, if he so desired, expend the whole amount for one building.

Mr. SAMUEL. Have you had any trouble in securing suitable bids for those buildings?

Mr. ZAPPONE. We have had a large amount of trouble on account of the high prices prevailing for building materials all over the country. Bids have already been received, but they have all been too high to be considered, and new proposals have been ordered invited by the Secretary.

Mr. SAMUEL. How do you arrive at the conclusion that a bid is too high—by comparison with others?

Mr. ZAPPONE. By comparison with the proposals received for similar buildings in other years.

Mr. SAMUEL. Not by proposals received this year from other places for similar buildings?

Mr. ZAPPONE. No, sir; because all the proposals received this year have been unreasonably high. Before leaving this subject I wish to call the attention of the committee to the fact that either or both of the appropriations that I have named are available for the purposes to which they have been applied. Several decisions on the subject of

closely related appropriations such as these have been rendered by the Comptroller. I will read them, as in my judgment they show that the administrative officers of the Department have confined themselves to the laws in question.

The decisions of the Comptroller bearing on the use of two appropriations which are closely related, either of which may be used for a purpose named, are as follows:

While it is a rule that a specific appropriation excludes the use, for the same objects, of a general appropriation, yet when there are two appropriations both applicable to the same object, they are to be treated as cumulative, and either or both can be used, in the discretion of the head of the Department. (4 Pub., 121; 9 MS., 1008; 17 id., 1256; 18 id., 727, 838.)

* * * * *

There being two appropriations, either of which may be used for the payment of veterinary inspectors in the animal quarantine service of the Department of Agriculture, the Secretary may direct the use of either or both for such purpose. (4 Pub., 121.)

* * * * *

The appropriations for the Gettysburg National Park, made in the acts of August 18, 1894, and February 11, 1895, to the extent that they provide for objects common to both, are cumulative, while each is available for certain objects not provided for in the other. (2 Pub., 59.)

* * * * *

By the act of March 1, 1895, the judge of the United States court in the Indian Territory then in office became entitled to a salary of \$5,000 per annum. In the act of March 2 the regular appropriation of \$3,500 was made for his salary, and on the same day the appropriation of \$50,000 for salaries of judges, etc., in the Indian Territory was passed. *Held*, That the two provisions are cumulative, and the first named may, when exhausted, be supplemented by the second. (1 Pub., 357.)

* * * * *

Under the act of June 7, 1897, which provided that where a specific appropriation under the control of the Interior Department is not sufficient for the completion of the object for which it was made the Secretary of the Interior may, in his discretion, use any other appropriation, general in its terms, which would otherwise be available for the accomplishment of the object for which the specific appropriation was made, the Secretary is authorized to use the general appropriation for surveys of public lands for completing the survey of lands ceded to the United States by the Shoshone Indians, for which object an insufficient specific appropriation was made by the act of March 3, 1905. (XI Pub., 800.)

This covers all the expenditures made by the Weather Bureau at Mount Weather. The original construction of buildings was made solely from the building fund, as there is a general statute which provides that public buildings must not be erected unless specifically appropriated for by Congress. All of the other expenses may be incurred under the general lump-sum appropriation termed "General expenses, Weather Bureau," or under the appropriation "Buildings, Weather Bureau."

I would like to add, in connection with the scope of the appropriations and the authority vested in the head of the Department, the decision of the Comptroller as to the discretion of the head of the Department. This appears in another part of the record, but as it has a direct bearing here I feel that it should be repeated. It is as follows:

The question whether a particular expense is necessary or appropriate to the object for which an appropriation is made is one which is ordinarily within the discretion of the head of the Department having control of the disbursement of

(Witness: Zappone.)

the moneys appropriated; but this discretion is not an unlimited discretion; it is a legal discretion, subject to the terms of the particular appropriation and to restrictions imposed by other laws. (7 Pub., 31; 8 id., 327; 15 MS., 88, 313.)

Under the appropriation acts and the decisions bearing upon this subject which I have read, in my judgment, it is shown that each and every expenditure of the Weather Bureau, either from the fund for general expenses or the fund for buildings, has been fully authorized.

As to the scope of the authority for the erection of buildings, that is one which has been passed upon by several persons before this committee, and I think that the consensus of their opinion is that the expenditures thereunder are entirely a matter within the discretion of the Secretary of Agriculture.

The appropriation acts, already very broad in their terms, were further increased in their scope by the language employed in the bill for the present fiscal year. Mr. Chairman, I have nothing to add unless you desire to ask some further questions.

Mr. SAMUEL. In the Sandy Hook building there is no expense for grounds?

Mr. ZAPPONE. None whatever. We will erect a building on the Government reservation. We do not have to purchase a site, Mr. Chairman, every time we erect a building. In other words, as I have tried to explain previously, a station does not necessarily mean both a site and a building. It may be either or both, as circumstances may require. Where we can get the ground for nothing, as a voluntary contribution or by the use of a Government reservation, it is in the interest of economy for the Government to do so, and we always avail ourselves of the opportunity. In one or two cases universities have donated ground for the erection of our building on the campus. Of course under the law the Government can not accept a gift from a private individual, so that some nominal consideration, usually \$1 or \$5, is named in the deed; but to all intents and purposes the site is a contribution to the Government.

Mr. SAMUEL. Was there not some trouble in the erection of one of the buildings at Mount Weather, owing to the failure of the contractor, which increased the cost of that building?

Mr. ZAPPONE. Yes; there was. The contractor, not realizing the conditions in that section of the country, placed a very small bid for the erection of the building in question, and, as I recall it, he lost money on the job; at least he said so. But I think that the additional work that was done on the building afterwards, and which was done by him or by day labor, enabled him to offset his losses to some extent. But even after his contract was entirely completed he always made the statement that he lost money on the work.

Mr. SAMUEL. Did not the Government complete that by day's wages after his failure?

Mr. ZAPPONE. Yes; in a way. He did complete his contract, but they made certain additions and alterations, which action was permissible under the contract, and which is permissible in the erection of every public building. Every contract for the erection of a public building contains a clause under which additional work may be done by the contractor who received the award for constructing the building. That additional work need not necessarily be done under

competition, because the contract provides that, as the emergency for the work arises, it can be done by the contractor.

Mr. SAMUEL. Do you know how the price of that building was increased by his failure over the contract price that was given?

Mr. ZAPPONE. No, sir; I do not. I want to say that there was no failure at all. He was perfectly willing to complete the building according to the specifications, but our change in the scope of the work as outlined made it necessary to make a change in the construction of the building. The top floor was originally designed for storage purposes, the sloping walls in the rooms rendering them unsuitable for other use. Afterwards it became necessary to change the character of this floor by straightening the walls and installing proper plumbing, in order that the space might be used as laboratories.

Mr. FLOOD. The only question, as I understand it, is whether the Department was authorized to put these buildings at Mount Weather.

Mr. ZAPPONE. That is the sole point at issue—the scope or the authority of the law under which the buildings were erected at Mount Weather and of the authority to install a project or plant there, the ultimate cost of which, as stated by Professor Moore, will be about \$250,000. I have held in my testimony throughout that the laws as passed from year to year have been sufficient to cover it.

Mr. FLOOD. I have not heard it all, but it seems to me that the statement is very satisfactory.

Mr. ZAPPONE. I do not understand that there is any other question involved at all.

Mr. FLOOD. That is my understanding of it.

Mr. ZAPPONE. Except the scope of the authority. There has certainly been no collusion or dishonesty on the part of any employee of the Weather Bureau.

Mr. SAMUEL. Professor Moore stated in his testimony that the buildings at Mount Weather had cost about \$130,000 up to that time, which was the 10th of January. What do the figures show to have been the expense up to that time?

Mr. ZAPPONE. The sum named by Professor Moore was an approximation. I have before me a copy of the records of the Weather Bureau in general form, showing that the total expenditures at Mount Weather from July 1, 1902, to January 10, 1907, were \$161,093.26.

I desire to add in this connection that some expenses for Mount Weather during the present year have not yet been actually incurred, but have been contracted for; therefore I will give you the sum actually disbursed for the fiscal year 1907. The amount really expended to date during the present fiscal year is \$11,800.

The CHAIRMAN. Have you any other statement bearing on the subject at present under consideration?

Mr. ZAPPONE. None whatever, Mr. Chairman, except that I am ready to answer any questions, and I know that Professor Moore is, regarding anything about which the committee wish to inquire.

The CHAIRMAN. Will you, in connection with the other schedules, be kind enough to furnish us, and make it a part of your examination, a list of expenditures from July 1, 1902, to January 10, 1907, under each of the two appropriations "Buildings, Weather Bureau," and "General expenses, Weather Bureau," at Mount Weather, Va.?

(Witness: Zappone.)

MR. ZAPPONE. Here is the desired statement, Mr. Chairman:

Expenditures at Mount Weather, Va., July 1, 1902, to January 10, 1907.

[Appropriation: "Buildings, Weather Bureau."]

Administration observatory.....	\$21, 266. 72
Stable	1, 900. 00
Power house and balloon observatory.....	8,817. 00
Water tower and tank.....	1, 567. 55
Absolute magnetic observatory.....	7, 000. 00
Variation magnetic observatory.....	8, 904. 55
Barn	900. 00
Farmhouse (remodeled).....	1, 300. 00
Physical laboratory	20, 795. 41
Cottage for office and residence.....	3, 800. 00
Total under above appropriation.....	76, 251. 23

[Appropriation: "General expenses, Weather Bureau."]

Kite shelter.....	\$1, 738. 69
Repairs to buildings in connection with their maintenance, including installation of instruments.....	9, 422. 75
Building fences, making walks and roadways, improving grounds, etc	10, 164. 63
Apparatus, machinery, implements, etc.....	33, 770. 06
Miscellaneous supplies, equipment, fuel, forage, etc.....	18, 075. 78
Hauling supplies, equipment, fuel, forage, etc.....	8, 240. 72
Horses, wagons, and repairs.....	1, 466. 86
Construction of telegraph and telephone lines, repairs, etc.....	1, 962. 54
Total under above appropriation.....	84, 842. 03
Grand total	161, 093. 26

The CHAIRMAN. And will you be kind enough to examine your files and ascertain how much has been expended for equipment at Mount Weather under appropriations other than that for the purchase of sites and the erection of buildings. Do I make that clear?

MR. ZAPPONE. Not exactly, I think; I have already done that.

The CHAIRMAN. I do not wish you to give the items in detail, but please give the aggregate for the fiscal years 1903, 1904, 1905, and 1906, of the sums expended for equipment of the observatories that are not included in the items that you have already given us, in the statement that you have made. Will you take the stations that have been constructed under the appropriations for the years 1903, 1904, 1905, and 1906, and ascertain, in connection with those stations, what sums have been expended for equipment under the appropriation for "General expenses, Weather Bureau?"

MR. ZAPPONE. I will be glad to furnish the information desired.

The CHAIRMAN. Then when you get the figures, if it is divisible in the accounts under the heads of furniture, supplies, and so forth, simply make the division so that we can get the amount for each item, so far as it may be divisible.

MR. ZAPPONE. I will do so. Of course it will only be approximately.

(Witness: Zappone.)

Expenditures from appropriation "General expenses, Weather Bureau," July 1, 1902, to January 10, 1907, at stations at which observatory buildings have been erected during this period.

Stations.	Supplies, including stationery, fuel, miscellaneous material, etc.	Furniture, including carpets, curtains, shades, etc.	Instruments, including machinery, implements, etc.	Storm-warning towers.	Flag-staffs.
Amarillo, Tex	\$1,260.90	\$573.34	\$859.95	.....	\$33.00
Bentonville, Ark	507.30	836.15	864.50	.....	9.00
Burlington, Vt.	796.00	841.25	894.05	.....	10.00
Columbia, S. C.	935.17	697.54	860.50	.....	10.00
Devils Lake, N. Dak	1,376.45	752.42	945.00	.....	37.60
Duluth, Minn.	1,518.30	1,189.53	1,097.15	\$3.00	.....
Havre, Mont.	1,090.40	702.31	797.00	.....	3.00
Key West, Fla.	995.63	601.60	1,192.90	207.30	.....
Modena, Utah	1,055.25	809.50	769.50	.....	15.00
Mount Weather, Va.	11,832.08	6,243.70	33,770.06	.....	.....
Nantucket, Mass.	403.15	649.05	895.00	502.25	22.00
North Platte, Nebr.	609.35	363.37	879.35	.....	40.00
Oklahoma, Okla.	645.80	1,029.50	1,269.70	.....	.....
Peoria, Ill.	1,188.11	1,044.30	966.03	.....	.....
Sand Key, Fla.	907.10	615.35	864.03	141.00	.....
S. E. Farallon, Cal.	1,140.17	1,214.49	973.00	360.00	.....
Springfield, Ill.	775.55	1,772.67	1,037.50	.....	20.00
Yellowstone Park, Wyo	1,526.13	1,014.91	853.00	.....	87.20
Total	29,062.84	20,950.81	49,788.16	1,213.55	286.80

Grand total, \$101,302.16.

NOTE.—Practically none of the supplies and equipment enumerated in the above list (except flag-staffs and window screens) were purchased during the period named from the appropriation for "Buildings, Weather Bureau." That appropriation each year was used for the original construction of buildings, or for repairs and improvements thereto.

The CHAIRMAN. In your bookkeeping in the Department, we understand that you keep the disbursements in separate accounts under these different appropriations. For instance, a disbursement that is made under an appropriation for purchase of sites and construction of buildings would be one account, and the disbursements made under general expenses, Weather Bureau, would be another account. That is, you keep separate accounts in that respect?

Mr. ZAPPONE. The bookkeeping is so kept in regard to appropriations, but the expenditures under that appropriation are not in detail as regards the groupings referred to above, meaning equipment, furniture, stationery, etc. These items are not kept separate. So it will be rather difficult to obtain the information that you have asked; but I can do so in a few days.

The CHAIRMAN. Then you keep an account with Mount Weather station under the first appropriation, General expenses, Weather Bureau, and another account with Mount Weather for Buildings, Weather Bureau?

Mr. ZAPPONE. That is right, Mr. Chairman.

The CHAIRMAN. So that along from day to day as the disbursements are made they are segregated into separate accounts?

Mr. ZAPPONE. As regards appropriations only, but not as to the groups you have mentioned, or the items you have mentioned.

The CHAIRMAN. No; but in your accounts you charge up each item from day to day as you make accounts of disbursements, the items, and you do not wait until the end of the year and divide the appropriations, but you keep the account separate?

(Witness: Zappone.)

Mr. ZAPPONE. Yes; we strike a balance every day, and with the permission of the committee I would like later to bring the books of my office over here, so that you can see the system of bookkeeping employed, or, if the committee would come to the Department, to show them to you there. I will have my bookkeeper take one or two illustrative cases and carry them through for you from the time the expenditure is authorized until the account is actually paid.

The CHAIRMAN. We will be very glad to do that later when we can get around to it.

Mr. ZAPPONE. We will be very glad to have you gentlemen visit the Department, and I trust that you will find it convenient to do so. I am sure that the Secretary and all the officials of the Department will be very glad to receive you and show you every courtesy. The Secretary personally requested me to extend you this invitation.

The CHAIRMAN (examining "Estimates of Appropriations"). The estimates for appropriations on the part of the Department of Agriculture, so far as they relate to observatories and stations, except so far as increase of numbers is concerned, are similar to the appropriation bills. For the year ending June 30, 1902, the estimate reads:

For the purchase of a site and the erection of a small brick and wood building at Atlantic City, New Jersey, for the use of the Weather Bureau, including all necessary labor, materials, and expenses; plans and specifications to be prepared and approved by the Secretary of Agriculture, and the work done under the supervision of the Chief of Weather Bureau, six thousand dollars.

The only material changes in the appropriation for this year were the addition of five other specific stations at different places and an increase in the amount appropriated from \$6,000 to \$26,000.

The estimates for the fiscal year ending June 30, 1903, read:

Buildings, Weather Bureau: For the purchase of sites and the erection of not less than six (6) buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations, fifty thousand dollars.

The appropriation did not differ from the estimates.

The estimates for the year ending June 30, 1904, read precisely the same with the exception of the addition of the proviso:

Provided, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings owned by the Government and occupied by the Weather Bureau.

The 1904 appropriation changed the clause "not less than six buildings" to "not less than five buildings," the total amount of the appropriation, \$50,000, remaining unchanged.

The 1905 appropriation cut the estimated building expenditures from \$50,000 to \$48,000. In the proviso clause of this year authority to expend the balance was extended to include improvement of grounds as well as buildings.

The 1906 estimate followed the wording of the 1905 appropriation; the 1906 appropriation was for \$53,000 instead of the estimated \$48,000, limited repairs use of the unexpended balance to places outside of the District of Columbia, and provided for the use of a Federal site for the building at Springfield, Ill.

The 1907 estimates were for \$60,000, but in other essential respects followed the estimates for 1906. The 1907 estimates also limited repairs expenditure of balance to points outside of the District of Columbia. The 1907 appropriation changed the wording of the estimate from "not less than five buildings" to "not more than five buildings," and reduced the total amount estimated from \$60,000 to \$53,000.

JANUARY 29, 1907.

(Part of the testimony given on above date before Committee on Expenditures in the Department of Agriculture.)

STATEMENT OF HON. JAMES W. WADSWORTH.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You are the chairman of the Committee on Agriculture?

Mr. WADSWORTH. Yes, sir.

The CHAIRMAN. And have been for how long?

Mr. WADSWORTH. Since the beginning of the Fifty-fourth Congress, in December, 1895.

The CHAIRMAN. Continuously?

Mr. WADSWORTH. Yes, sir.

The CHAIRMAN. In the course of our examination of the expenditures of the Department of Agriculture, we had occasion to examine into the establishment of what Professor Moore calls, in his report of 1903, "a research institution, located at Mount Weather." His understanding of the matter was that the construction of this research institution was authorized under an appropriation reading as follows:

For the purchase of sites and the erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans, and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstaff, and storm-warning towers to properly equip these stations, \$50,000.

He informed us that, in his judgment, that appropriation authorized him to begin and continue the construction of this so-called "research institution;" that he had conferred with the Agricultural Committee prior to originating the work, and practically every year since, and that the Agricultural Committee had agreed with him in his construction of the statute and concurred in authorizing the expenditure. Would you wish to make any statement in relation to that on the part of the Committee on Agriculture?

Mr. WADSWORTH. I do not think that the Committee on Agriculture ever realized that under the appropriation for "Buildings, Weather Bureau," contained in the appropriation bills of the last few years an expenditure for an observatory or weather station, costing something over \$200,000, and the maintenance of which would be about \$25,000 a year, was contemplated. I think that under the interpretation of the language used in that clause and the language used in the preceding clause—"And the erection, under the super-

vision of the Chief of the Weather Bureau, of not to exceed four additional observatory buildings"—perhaps he had the legal authority to do so; but I do not think that the committee ever realized that it had given that authority. If they had realized that, they would have asked Mr. Moore for a more definite statement as to what he contemplated doing at Mount Weather.

The first intimation whatever that the committee had of any Weather Bureau station of any character being put up on Mount Weather was brought out in the hearings of December 8, 1902, when we had Professor Moore before us; and to show what the committee had in its mind, and what they thought was contemplated at Mount Weather, I will read to you what was said on the subject, at page 11 of the hearings on the estimates of the appropriations for the Department of Agriculture for the fiscal year 1902-3:

Mr. MOORE. There are many places where there are no Government buildings and no suitable places of habitation for our observers. For instance, under the authority of last year's appropriation, we have not completed the building at Modena, Utah, yet.

The CHAIRMAN. There was some difficulty about the site there?

Mr. MOORE. Yes; but we have the difficulty about the site settled, and now we have not been able to get a bidder to erect a building there. I had to send a man there who practically camped out on the prairie. But we must have an observation from that point. It is the most southwesterly point from which we can get a telegraphic report in that great open arid region in Utah. We specially need a barometric observation from there. Then there is Winnemucca, Nev.; Flagstaff, Ariz.; Phoenix, Ariz.; Nantucket, R. I.; Pocatello, Idaho, and Kalispell, Mont., or Oklahoma, Ind. T., that need buildings.

The CHAIRMAN. Have you nothing at Modena?

Mr. MOORE. We have a station there.

The CHAIRMAN. Have you no buildings there?

Mr. MOORE. We have no buildings there. We would save money by erecting a little observatory. A man would live right in the observatory, and then we would always have him on duty.

The CHAIRMAN. What are the other places?

Right there let me call your attention to the fact that up to a certain date, before the passage of the bill under which he commenced this work, we, i. e., the Committee on Agriculture, specifically named each station to be established. After that we gave to him the power to erect not more nor less than five stations, and did not specify where they were to be located.

The CHAIRMAN. What are the other places?

Mr. MOORE. Yellowstone Park you had in last year. but by the time we got ready to go ahead it was too late to build.

We had named Yellowstone Park, you see.

When we got our plans ready and got our bids, it was getting pretty near November, and there was no use starting any work there; so instead, we used that money to put a station up here in the Blue Ridge Mountains, where it was very important to have a station for this region of country.

That was the first intimation that we had of the starting of a station at Mount Weather, and it will be seen from the language that Mr. Moore himself uses, it was substituted for the Yellowstone Park station, which had been specifically named in the appropriation bill, if my memory is correct.

The CHAIRMAN. Was there any discussion before the committee as to the size of the project contemplated at Mount Weather?

Mr. WADSWORTH. No; it does not show here at all.

The CHAIRMAN. Whereabouts?

Mr. MOORE. About 5 miles from Bluemont, Va., on the mountain.

The CHAIRMAN. Have you not a station in that neighborhood at all?

Mr. MOORE. No; we never have had. In the last few years we have put four stations in the Blue Ridge Mountains—one at Asheville, N. C., one at Wytheville, Va., one at Elkins, W. Va., and one near Bluemont, Va.

So I think it is fair to say that the committee, in view of that testimony, had a right to infer that the station to be put up at Mount Weather was like the other stations that he mentioned in that connection.

So much for that hearing. The Secretary's report of the following year contained the first reference to a "research" institution at Mount Weather, and from that time on I want to say frankly that the committee, through the Secretary's report and the Secretary's report only, realized what had been done at Mount Weather. That matter was considered somewhat, and under the authority given under the "general expenses" of the Weather Bureau we thought perhaps he was within his legal rights, strictly within the law, and we did not do anything further about it. But I want to assert very strongly that the committee had no idea that this work, involving an expenditure of some two hundred thousand dollars, had been started. We thought there was going to be built up there a weather station like Wytheville and those other stations which he names—Wytheville, Elkins, and Asheville. The Secretary mentions it in his reports of 1903, 1904, 1905, and 1906. The committee never heard any more of this station from Mr. Moore; I do not say through his fault—perhaps we did not ask him about it—but we never heard of that station from Mr. Moore in the hearings, so far as I have been able to find, until January 12, 1906.

The CHAIRMAN. What appeared then?

Mr. WADSWORTH. It appears that I told Professor Moore then that we had seen a good deal in the papers about the extravagance of the construction at Mount Weather, the cost of the furniture, etc. And that was the first that I recollect hearing from Mr. Moore after that hearing in 1902.

The CHAIRMAN. At the hearing in 1902, if you have quoted it all, there evidently was no discussion as to the construction of the appropriation or the authority conferred?

Mr. WADSWORTH. Not at all. He goes on further:

The CHAIRMAN. All at the top of the Alleghanies?

Mr. MOORE. Yes; running from here clear down into North Carolina. Before that there were no stations on this broad range of mountains at all, and it was very important for the forecast work—

For the forecast work; not research work, but forecast work—of the middle Atlantic coast to have them. We found near Bluemont an 1,800-foot elevation and we had to build our own observatory there.

There he changes the word to "observatory." I suppose that is the technical name.

The CHAIRMAN. Yes; they are all observatories.

Mr. WADSWORTH. Then it goes on:

The CHAIRMAN. What is this sixth one?

You see we had named distinctly the stations.

Mr. MOORE. Kalispell, Mont.; either there or at Oklahoma City.

And so on.

The CHAIRMAN. I have here the hearing before your committee on January 12, 1906. On page 24 it appears that the chairman put the following inquiry:

The CHAIRMAN. Tell us about Mount Weather. There has been a good deal in the papers about that, and the committee would like to know about it. Tell us the beginning of the establishment there—when you first commenced building it, and the cost of it so far.

Professor MOORE. We began that work three years ago.

Then he proceeds through pages 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, and 38. We will insert in our report, for convenience of reference, the statement made by Professor Moore before your committee in 1906, to which reference has been made, if agreeable to you, as part of your testimony.

Mr. WADSWORTH. Yes.

The statement referred to (pp. 24 to 38, inclusive, hearings before the Committee on Agriculture on January 12, 1906) is as follows:

Professor MOORE. Yes. Now, Mr. Chairman, I wish some of you gentlemen would go over to Mount Weather with me.

The CHAIRMAN. Tell us about Mount Weather. There has been a good deal in the papers about that, and the committee would like to know about it. Tell us the beginning of the establishment there—when you first commenced building it, and the cost of it so far.

Professor MOORE. We began that work three years ago. At that time I had purchased a little ground over on the mountain for less than \$2,500—nearly 90 acres. I had erected one little weather-reporting station in the beginning—a station that would be useful merely as an observation station in connection with the forecasts here on the Atlantic coast. We had very few stations along the ridge of these mountains, and I wanted to get two or three. We put in one at Elkins, one at this place at Mount Weather, and one down at Wytheville, Va., to cover these Blue Ridge Mountains.

In establishing that third station, I said, "I can get enough ground here for a song, and while I am putting in the station I may as well buy it up," so that I got the other 90 acres for a total cost of less than \$2,500. A good deal of it cost less than that, but I had to buy up a right of way; a road went through it that I wanted to close, and I had to pay four or five hundred dollars for that; but the whole thing did not exceed \$2,500. Now, I said, "I will buy that because it will be useful to the Government at sometime for establishing a research institution, and if it is not utilized for that it will be useful as a mere weather station."

I wrote in my annual report in that year, three years ago, quite fully what I wanted to do there, but what I had not yet done, and I explained it to you then; and the committee seemed to be favorably disposed to my going ahead and establishing there a research institution, on the idea that if we spend nearly a million and a half dollars in the application of a science that is not yet perfect we might with wise economy spend a little money at one of these 200 stations for the purpose of adding to that very knowledge which we are applying at all the rest.

As I explained to you then, we have reached the highest degree of accuracy in our frost warnings, our cold-wave warnings, our marine warnings, and our predictions of the weather generally that it is possible for us to reach with our present knowledge of the science.

Back of every art is the science itself, and your ability to handle that art is going to be proportionate to your knowledge of the science back of it. As a result of that, the committee—I think you, Mr. Chairman—asked how much money I wanted to go ahead with that work the following year in building additional buildings, and I said we did not want any additional appropriation; we wanted an authority. I said that if you left the authority open, as it is now and as it was then, we could build a little each year.

Mr. LAMB. I recollect that.

(Witness: Wadsworth.)

Professor MOORE. Yes; and in that way we would gradually lead up to this institution. So that the committee was well informed before we began as to what our general intention was, and the committee seemed to be favorable to it.

Since then we have built one or two buildings here. Usually one of these five buildings has gone at Mount Weather, until we have the main administration building; the power plant and shops; a little cottage under the hill, altered over from a little farmhouse that was there, so as to provide living quarters for two of the workmen and their families; the wagon house and stable, and two magnetic buildings—and they are the best that have yet been constructed anywhere in the world, and the apparatus is of the highest degree of precision. There is nothing anywhere in the world for measuring the different components of magnetic force that is equal to the precision of these instruments. We have been about three years in building those instruments, and they have cost us in the neighborhood of \$10,000. About one-third of them are now mounted.

Then we have a little building which we call a kite shelter. It is a little building about 20 feet in diameter, or perhaps 22 feet, running on a track. It rotates, so that one side of it is open and the other side is inclosed, or one side may be open and the other side is closed. That rotates and may be turned with a crank, so as to keep the closed side always to the windward. From the open side we can fly kites or we can liberate balloons.

There are now seven buildings constructed at that place, some of them costing only \$350 or \$400, like the stable; some of them costing as high as \$18,000 or \$20,000, like the main building.

The CHAIRMAN. Which is that—the main residential building?

Professor MOORE. Yes.

The CHAIRMAN. How much did that cost, Professor?

Professor MOORE. That cost us about \$18,000; perhaps only \$15,000. No; hold on. I have not those figures here. I am carrying a good many figures in my mind, and I want to be clearly right.

The CHAIRMAN. Well, approximately?

Professor MOORE. Our first contract on that building was only \$9,000. Of course the contractor went to pieces on it, and we had to help him out in one way or another, and we finally got it up. Then we completed it by day's work—that is, we added to it; we cemented the outside by day's work. So it stands us not less than \$15,000; and it is a fine structure, too.

The CHAIRMAN. Is it of stone?

Professor MOORE. All stone. We got the stone for all of our buildings right on the premises, and we had a surplus then, and we built a stone fence around all the exposed side of the premises, a distance of a mile or over—maybe a mile and a quarter.

The CHAIRMAN. Is it loose stone, or laid in cement?

Professor MOORE. Loose stone. We cemented the top. We put the cement cap on the top part of it. It is not yet all done.

We have spent, so far, \$61,000 in those buildings. We have spent a little over \$20,000 in instruments and machinery and appliances. In the power house, for instance, I have a 35-horsepower gasoline engine. I have an electrolyzer for charging water under high potential and changing it into hydrogen gas. That cost \$2,500. I have lathes and tools for the making of things. I have one skilled mechanic and an engineer. I have the place equipped with electric wires, so that I can light it all from the power plant. I have also a gas plant, so that when we may not want to run the engine (as is sometimes the case) we can run the acetylene plant. Then we drove a well 108 feet deep right in the crest of that mountain, and got all the water we could use—splendid water.

The CHAIRMAN. Only 108 feet deep?

Professor MOORE. Only 108 feet deep, right in the crest of the mountain, where it would appear that there was no watershed at all; and still we got all the water we could use. We pump it up by means of a little oil engine into a pretty large tank. I can not give you the capacity of it now, but it is a large tank and supplies the water for the whole place.

The CHAIRMAN. That is all included in the cost so far?

Professor MOORE. Yes; I have spent about \$100,000 there. The running expense, the salary expense, of that institution to-day is \$13,000 a year.

The CHAIRMAN. Before you get to that, the total expenditure up there up to date is about what, in round figures?

Professor MOORE. It is somewhere between \$100,000 and \$125,000. I can not give it to you exactly.

(Witness: Wadsworth.)

Now, Mr. Chairman, we have furnished the main observatory building and the administration building for office purposes, and we have furnished them for the living purposes of the people, just as you would at a military post or a mountain astronomical observatory. We must give the people that live there proper domestic facilities; and a good many of our people are transient. Those that are transient and the supervising official we quarter in the main building. We furnished that building. We furnished their sleeping rooms and their living rooms. We furnished them substantially and well, but not extravagantly, as you may have read in the newspapers.

The CHAIRMAN. You furnished the linen and glass and everything?

Professor MOORE. Yes; everything is furnished there, and in the kitchen and dining room; but the mess is supported entirely by the people that live there, and the attendants are paid by them. They pay a dollar a day into a mess fund, and pay for their own cook, their own waiter, all their own service, and all their own provisions. Now, you probably have seen some account in a newspaper—

The CHAIRMAN. Right there. I wish you would send to the committee an itemized account of the cost of these several buildings—your stone fence, etc. We may have to answer some questions about those things on the floor.

Professor MOORE. I will do so; but that will take me four or five or six or seven days.

The CHAIRMAN. There is no hurry about it; I just want to have it for use if necessary.

Professor MOORE. I can see about \$100 000 there now, and it may run a little over that, but not very much, I think; and when we get through it will probably cost—

The CHAIRMAN. That is what I want to know—what it will cost when completed.

Professor MOORE. We are now finishing the physical laboratory. We have that up to the second floor. We can not finish it, of course, at present; we are not working on it just now.

When we get through and start to get the apparatus in there, we will probably be spending money there for five years yet to come, and I presume that if we carry the complete scheme out the whole plant will probably cost us not less than \$200 000. It will not go over that; it will not be above that, but that will give to this Government the most perfect set of apparatus that human ingenuity can devise for experimenting in these problems of aero-physics.

There have been many wonderful discoveries made by physicists and chemists within recent times that have a truly wonderful effect on the air. The chemist and the physicist knows nothing of meteorology; he does not care anything about it; neither does the astronomer, who is now measuring the sun by his photo-heliographic processes. But these discoveries all have a very important relation to meteorology, the physics of the air: just what relation we do not know. We are establishing at this place an institution that will enable us in the next ten years to determine whether it is possible for science to make a prediction of the rain and the sunshine on the cotton belt or of the droughts over the corn belt.

Mr. BOWIE. For how many months in advance?

Professor MOORE. For a season in advance. Of course, it is not necessary for me to say what a wonderful conservation of human energy would result if we could only tell what would be the rainfall and the temperature over these great cereal States or great cotton States. We do not know but what it can be done. We do not know that it can be done, but we do know this:

To-day we are making forecasts that, according to a recent computation made during the past year, show 88 per cent of accuracy. That is our average accuracy over the whole United States. In the past ten years, since 1893, we have gained 5 per cent. That has been a very great gain, and it has only been gained by the most rigid application of the doctrine of the "survival of the fittest." We keep every forecaster working in direct competition with other forecasters; every statement he makes for publication is compared with those of all the others. It is compared with a certain standard, and his departure from that standard is entered up.

There is brought to me the record of every local forecaster and every district forecaster, and at the end of the year I have a combined statement of those records; and once every year I go through that statement, and once every year man after man who can not keep pace in that intellectual competition drops down, drops aside, and the brighter, more intellectual man comes to the front. It has been severe on our people, but it has raised the degree of accuracy up to 88 per cent. I was thinking the other day that perhaps it is too fierce; for I have had more people go to the insane asylum, I am sorry to say, than from any other bureau of the Government service. That fierce intellectual competition does wreck the weaker minds; but it gives the public service the stronger ones. The whole thing is illustrated by a lecture that Doctor White gave here, showing the lines of radiation, showing the geographic distribution of insanity.

The CHAIRMAN. You say that when you have completed that establishment up there it will cost not to exceed \$200,000?

Professor MOORE. Yes; and its running expense—

The CHAIRMAN. Now give me the cost of its maintenance.

Professor MOORE. Yes; its maintenance now is \$13,000 a year for salaries.

The CHAIRMAN. For salaries?

Professor MOORE. Yes.

The CHAIRMAN. How many people have you up there?

Professor MOORE. I will show you. Professor Humphreys receives \$3,000; that is the highest salary. He is one of the best developed mathematical physicists we could find in the country.

The CHAIRMAN. Does he make his headquarters there constantly?

Professor MOORE. All the time.

The CHAIRMAN. Winter and summer?

Professor MOORE. He is the supervising man.

The CHAIRMAN. Is his family there with him?

Professor MOORE. He has no family. He is a man about 35 years old, one of Roland's brightest pupils—Roland, the great physicist of John Hopkins University. For some time he was professor of physics at the University of Virginia. I went all over the country looking for bright, active physicists, men who had fine technical training, and who still had their futures in front of them, not behind them, as the Irishman said; and I finally located this man Humphreys by the work that he had done.

Mr. LAMB. Was he at the university then?

Professor MOORE. We found him at the University of Virginia then, and we negotiated with him to come. We made overtures to him. He did not come to us at all. He was not an applicant for the place. He is a very talented man, a native of West Virginia; and so I took him for the supervising director. I did not take one of our own experts. You may think that strange. Why? Because I wanted a man peculiarly talented in the use of the latest laboratory apparatus that applies to these particular problems; and he seemed to be a man who had made a specialty of it since he left Roland. He was with Roland when he made his defraction gratings, by which an inch is divided into 40,000 equal spaces.

Then there is Mr. Louis G. Schultz, our director of magnetic and electric research. He gets \$2,000 and quarters—a good salary, but he has been about fifteen years in our service. We have lent him twice. We lent him to the Geological Survey at one time, and he was for two years with the Argentine Republic, establishing meteorological stations there; and he superintended to a large extent the making of these instruments. I think he is probably the ablest man in the United States, if not in the world, for the purely observational work in magnetic phenomena.

Doctor Fassig I have selected as the special student of upper-air problems. He gets \$2,000 and quarters, heat and light. These are good salaries; but these are the most talented men of our service, bear in mind, that I am referring to now. Doctor Fassig came from Johns Hopkins University also.

The CHAIRMAN. They got fuel, light, and lodging?

Professor MOORE. Yes.

The CHAIRMAN. But not board?

Professor MOORE. No; not board. Right there let me state that there has never been a Government carriage on those premises. I have seen accounts in the papers of "high-spirited horses" and "liveried coachmen," and Government carriages, and I have read time and again about entertaining parties over at Mount Weather. I suppose that is too ridiculous to answer; but I will say for the information of the committee that there have never been but four people not workers in that institution who ever spent a night in it. One of them was Mr. Bell, the inventor of the telephone, whom I took over there because I wanted to consult him. Another was the managing editor of the Philadelphia Press, who was quite a meteorologist. But I should not hesitate to take anybody over there that I wanted to take over there and keep him overnight if I felt like it, and show him the place. I go there when I can myself, though I do not go there as much as I ought.

The chief mechanic there gets \$100 a month. He is a fine mechanic, a worker in metals and fine instruments. Then the man who runs the weather station there and has charge of the buildings and the grounds—

The CHAIRMAN. The superintendent, as it were?

Professor MOORE. The superintendent of the grounds and buildings.

The CHAIRMAN. Not a scientist?

Professor MOORE. Not a scientist. He gets \$1,000 and quarters.

The CHAIRMAN. Do those quarters include fuel?

Professor MOORE. Yes. Now, then, the assistant to the magnetician gets \$1,000—the assistant to this \$2,000 man. Then I have Bowles, Sherry, Baxter, and Kelly. I have Bowles and Sherry, two laborers, at \$720 per annum, and I have Baxter and Kelly, two laborers, at \$480 per annum; and I have one at \$360.

The CHAIRMAN. And all those men get lodging, light and fuel?

Professor MOORE. Every one of them—oh, no; two of the \$480 laborers live on the mountains right adjoining there. They are mountaineers that we have hired there, that had been there for a long time, ever since we have been there.

That is the permanent force that is there; that is the scientific force, and the few laborers that are necessary to do the work about the premises—care for the furnaces, take care of the horses, etc. We keep two teams. We have two democrat wagons that run to the station, backward and forward. There is a trip made to the station, not every day, but sometimes twice a day; it depends upon the emergency.

Mr. LAMB. What sort of wagons?

Professor MOORE. Why, I have one wagon with two seats, a heavy democrat wagon with a big brake on it, and I have one longer one with three seats that I can carry trunks in.

There is our expenditure of \$13,000 for salaries; and the other expenses will probably carry the regular maintenance of that station to probably in the neighborhood of \$20,000—not over that.

The CHAIRMAN. You keep four horses there?

Professor MOORE. Oh, yes. I hire, every summer, three or four teams besides.

The CHAIRMAN. That is, during the time they are actually required to do the work?

Professor MOORE. Yes.

The CHAIRMAN. When they are engaged in doing work by the day?

Professor MOORE. Yes.

The CHAIRMAN. Did you build this wall by day labor or by contract?

Professor MOORE. We built that by day labor, and we have built roads by the day, hiring our own people. We have built all the buildings, except the first one, by the day. I saw some statements in the paper to the effect that I was paying \$3 a day to ordinary, common laborers. I never paid but a dollar and a half a day. Of course that was more than they were getting before, but I believe it was a fair rate. We paid \$1.50 a day for our common labor, and \$2.50 for our carpenters.

The CHAIRMAN. For eight hours' work a day?

Professor MOORE. Eight hours a day; \$2.50 for our carpenters and \$3 for our stone masons; and all except the first building we have built by day labor in that way.

The CHAIRMAN. Do you not think that would be better done by contract?

Professor MOORE. No.

The CHAIRMAN. Why not?

Professor MOORE. We tried the contract plan one year, and we were about two years fooling around, and we could not get much done.

The CHAIRMAN. Of course that may have been your experience in that case, but—

Professor MOORE. Nobody here will bid on it. If I get a contractor here in Washington to go up there, he will charge us twice what we could build it for ourselves by day labor; and there is only one man—

The CHAIRMAN. I will guarantee that even then he will do the work a good deal cheaper for you than you could do it by day labor.

Professor MOORE. You can not get him to go up there. You can not get a contractor to go up there and bid on the job.

Mr. BOWIE. On account of the distance?

Professor MOORE. The distance and—

The CHAIRMAN. Oh, well, you can get a contractor to bid on anything in this world.

Professor MOORE. Oh, no; you can not—not now. The people are too busy. You can not get a contractor to go up there and bid on that work without charging us from fifty to a hundred per cent more than it will cost us to do it.

The CHAIRMAN. And then he will beat your cost.

Professor MOORE. Oh, no.

The CHAIRMAN. Yes; he will. If you pay \$1.50 a day for eight hours' work a day he can beat you.

Professor MOORE. We tried it and tried it, and tried our best; and the only bid that we could get was from a man that lived over there, down in the valley—a good man, a splendid fellow, and an honest man. He did the work honestly and faithfully; but he lost money. He came out in the hole, and he could not do the work in time. He wanted to fix the time himself.

Now, I could go over there, as I did—I spent two months there myself—and I could take a force of men, hire a boss mason and a boss carpenter and a few skilled artisans,

and then fill in with this \$1.50 labor, and go right out there and take charge myself; and I could put up a building and have it up and finished in three or four months or less.

The CHAIRMAN. But you can not be there all of the time.

Professor MOORE. No; but we have our building men there in the summer.

Now, just let me say this, Mr. Chairman: I should say that at the culmination of our work there, when this institution is done, our running expenses are going to be \$25,000 annually. After about five years they will slowly work up, I should say, to \$25,000. That will be the extreme limit that can be spent, and you will have an institution such as will more than compare favorably with anything else in the world, because there is nothing else in the world as complete as this institution will be for this line of research.

The CHAIRMAN. Well, most of us hope to be here five years from now, and we will remember this promise of yours.

Professor MOORE. I have never broken faith with you yet, gentlemen; I never have.

The CHAIRMAN. You say that \$200,000 will complete it, and \$25,000 a year will run it?

Professor MOORE. Yes, sir; yes, sir.

I have not anything more, Mr. Chairman, unless you have. I would like to get you gentlemen to read this report.

The CHAIRMAN. Well, we will. Now, Professor, what have you done in kiteflying? Did you succeed in getting your kites up as you hoped to, and in getting the desired observations up there?

Professor MOORE. We have just gotten ready for that. Now, we do not expect to do much kiteflying. We shall send up a few kites from that mountain and carry them to great altitudes, and leave them there for days, as long as we can keep them up, and get all the information we can about the constancy or lack of constancy of the thermal conditions at high altitudes. But the line of research that we are especially interested in is to liberate a great many free balloons, little balloons about 3 feet in diameter, adjusted so that they will explode at about 5 and 10 miles' elevation, respectively, taking these two levels for exploration. What I purpose to do then is to equip my western stations with a number of these little balloons, collapsed balloons, and each station will have a cylinder of hydrogen gas, which we will make over here and send to the various stations.

Each one will have a number of these collapsed balloons, and it will have some of these little aluminum cases containing the automatic instruments that will register pressure, temperature, and humidity. We designed those instruments ourselves. Now, then, when I get a rain storm or a cold wave, either one, overlying the Rocky Mountain plateau, and I want to explore it, I will telegraph to, say, three stations in each quarter of that storm, "Liberate your balloons at a certain hour and day." When they are liberated they go up, they shoot right up through that storm; and as they go up they register the pressure, the temperature, and the humidity. They reach their given altitude; they explode; the instruments settle under a little parachute, and they land somewhere. The majority of them I will get back, because there will be a reward printed on them, you see; and when I get them back the case will come back to Mount Weather, and there it will be opened; and then Mr. Fassig (who is the student there of that problem) will take that weather map that occurred two or three weeks ago, the map of the storm he was exploring, and will begin charting, in the four quarters of that storm, the vertical gradient, the temperature, the pressure, and the humidity—in other words, the degrees of temperature and pressure in the several different quarters of that storm.

We know that a mass of air that is homogeneously heated will remain at rest forever, perfectly quiescent, unless it is acted upon by some extraneous source, like being pushed aside by some other mass of air, being acted upon by the rotation of the earth, and so on. If it is homogeneously heated, evenly heated, and its density is all exactly the same, it will remain at rest indefinitely. Therefore you can get no movement in a storm, no energy, no internal energy in a storm that is not due to difference in temperature between one part of that air mass and the other, or between the temperature of one mass and the temperature of some other mass that is coming toward it. So your source of energy is mainly due to the difference in temperature between the air at the bottom of the storm and that at the top of it, or some air up in the interior. If we get these readings, running up through these storms and cold waves, we are going to get at all the mechanical action that is involved in the movement of the storm; and that is the only way we can get it.

When we get that you may say, "Here, you can send out these balloons and explore the storm, but the storm will be gone weeks before you get your instruments back, so you can not forecast the storm by that means." That is true; but we are after information now as to what goes on in that storm.

(Witness: Wadsworth.)

That is one special line of research which we are pursuing now.

A MEMBER. Let me ask you, there, whether that instrument will not be broken all to pieces in coming down?

Professor MOORE. No; it comes down under a parachute. Now, take another line of research: We are building now, after Professor Langley's model (and I have had a man for the last six months working down with him), a bolometer of very close precision that will measure the temperature to the one hundred-thousandth—that will measure accurately one one-hundred thousandth of a degree Centigrade by differential action of electricity on two little pieces of platinum.

The last two or three years' observations with the instruments now constructed—and we shall make one of much higher degree of accuracy—have shown a remarkable thing, that contravenes pretty nearly everything we have known in regard to solar radiation. They show what is apparently a marked decrease in solar output. We have assumed that the sun was all the time radiating a constant energy into space. The results recorded by this instrument for two years show a marked deficiency, and it is a singular thing that we have had, up to the present time, three cool summers in succession, and both the last winters were cold. I do not know what that instrument will show within the next two or three months; but it is a singular coincidence that these bolometric measurements show a decrease in the solar intensity.

We want to carry those years of observation out minutely, and it may be that we will be able, through the measurements of the action of the sun itself, to foresee the marked sweeps of these cold waves, and possibly seasonal changes; we do not know.

Mr. SCOTT. Do your observations show how contemporaneous these conditions on the sun are with the change of conditions on the earth?

Professor MOORE. That is precisely what we want to do. For instance, in our solar physics observatory we shall measure the activity of the surface of the sun. We will take the heliograph, for instance, by which we can bring the sun one hundred thousand times closer than you can with the strongest telescope; we will note the number of these hydrogen flames that shoot up four or five hundred thousand miles from the surface of the sun, called prominences—that is what the astronomers call them. We will count the sun spots and the bright faculae that surround them, the number of them, and their frequency. We will count them up and chart them. "That has been done," you will say, "heretofore." So it has; but we are going to keep a concise record of them there also. But, mainly, we are concerned in measuring the variation in the different rays of light which the sun is sending out, and tracing them and correlating that with the contemporaneous weather.

There is a point where there has been little or no effort to take all of these wonderful observations of the astronomer, the chemist, and the physicist, and have them contrasted with the contemporaneous weather. That is precisely what we want to do. That is precisely what we are sending these experts there now to do. And if we see a variation in the solar output we can step right across the grounds to the magnetic observatory, and we can see what these instruments are showing; we can correlate the magnetic variation with these variations in the different wave lengths that constitute heat.

There are so many important problems there to investigate that have never been touched, and this science of ours is so imperfect, and you get so much benefit every year out of the applying of it in its imperfect state, that I think you agreed with us a long time ago that we ought to have one institution that would develop the science of the problem.

Mr. HENRY. What are you doing with the kite investigations that you are making? You made some experiments at Fort Meyer some years ago, I remember.

Professor MOORE. Well, Mr. Henry, there we got negative information. I thought that we could develop a kite that we could fly under any conditions with the most gentle wind, and that by establishing a number of stations just like our other stations we could get enough kites up to a mile elevation on any day to construct a chart from that elevation, and then to plat and draw off the horizontal distribution of temperature and pressure on that elevation. We established 16 kite stations in an area a thousand miles square; but we found that out of the 16 stations we never could get an average of more than three or four kites on any given day that would reach the mile elevation, and we could not get enough to enable us to construct a weather chart of that elevation, as we wanted to do. It was an effort which we made, and we failed in the primary object.

We did succeed in getting about 1,200 observations that reached more than a mile high. They are useful for theoretical study, and have been published in a little pamphlet which has gone all over the world; and we got information which was useful to us.

The CHAIRMAN. Your hope was, by charting that upper air, to more accurately forecast precipitation?

Professor MOORE. Yes; if you can make a distribution and determine what is the gradient of pressure as it shades off from this region over to that on a level a mile high, say, you already have the same thing down at the earth; and all you need to do is to ascertain and map the difference between the two levels and make vertical gradients. Now, I have not any idea but what we can make better forecasts when that is done; we will know why a storm changes from its normal track and shifts over to another region that we do not anticipate.

Mr. SCOTT. Professor, I want to inquire how much time limit you allow yourself in making up your percentages of accuracy in the matter of forecasts. For instance, if you make a forecast predicting rain to-morrow afternoon, and that rain comes in the morning, do you call that an accurate forecast?

Professor MOORE. We predict in twelve-hour periods, between 8 a. m. and 8 p. m., and between 8 p. m. and 8 a. m. the next morning. The rain has to fall during the twelve-hour period or the prediction is a failure.

We hold ourselves down to a very rigid marking. As I say, if the forecaster predicts rain to-day, it has to fall between 8 a. m. and 8 p. m., or we score him a failure. If he predicts rainfall to-night, it has to fall after 8 p. m. and before 8 a. m. the next morning. He must predict in twelve-hour periods and his rain must fall inside of his period; so that we hold him down to a very rigid rule.

Now, if you will notice here, I do not think we have lost a rain or snow here in the last month. I do not think we have. Nobody has ever mentioned it, and we never hear a word of it. But let a rain or snow fall here on a fair-weather prediction, and every man, woman, and child in the city will comment on it. They will begin to talk about it when you are a square off, and if they see any other weather man they will comment on it. It is a tendency of human nature to see your faults and never to detect your virtues.

But, I will say this, that rain and snow do fall many times when our meteorological chart gives us no information of it, when there is nothing to be gained from the distribution of pressure and temperature that will enable us to determine whether or not it is going to rain or snow. Many times that does occur; and especially does it occur down along the Tropics, and especially in the southern part of the country, along the Gulf States there. It is very difficult for us to foretell the rainfall there—extremely difficult.

Mr. COCKS. How about in the vicinity of New York, along the coast there?

Professor MOORE. There is always a complication right on the line between land and water, because there is such a difference between the two, and the air takes its temperature so materially from the temperature of the surface over which it passes—

Mr. COCKS. It is much easier to predict in the central west what the weather is going to be than it is in New York or Boston, is it not?

Professor MOORE. Well, I would hardly want to say that. I will say that it is easier to predict for Ohio and Tennessee and Kentucky than it is for the New England coast line.

Mr. COCKS. That is what I mean.

Professor MOORE. Mr. Chairman, here is the order organizing Mount Weather.

INSTRUCTIONS }
No. 98. }

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
Washington, D. C., July 24, 1905.

The following organization of the research staff of the Weather Bureau is hereby authorized:

AT WASHINGTON.

Director.—The Chief.

Board of advisers.—Prof. Cleveland Abbe, Prof. Charles F. Marvin, Prof. Frank H. Bigelow, Chairman, Prof. Edward B. Garriott, Prof. Henry J. Cox, Prof. Alfred J. Henry, Prof. Alexander G. McAdie, Prof. Harry C. Frankfield, and Prof. William J. Humphreys.

AT MOUNT WEATHER.

Supervising director.—Prof. William J. Humphreys, who shall have detail supervision of all work in the physical laboratory and solar-physics observatory and general, rather than detail, supervision of other researches. He will aid the research directors in matters wherein his knowledge may be of assistance, and will be an adviser rather than a director of their research; although in all matters of cooperation between

research directors he will have the controlling voice. He will have charge of the discipline of the institution, referring to the chief such matters as can not be settled at the station.

Mr. Herbert H. Kimball, who, through the courtesy of Prof. S. P. Langley, is receiving special training at the Smithsonian Institution in the use of the bolometer, will be Professor Humphreys's principal aid in solar physics, and Mr. Herbert L. Solyom, who by the kindness of Prof. E. B. Frost, is doing special work at the Yerkes Observatory, will be an additional assistant.

Director of magnetic and electric research.—Mr. Louis G. Schultz, who shall have charge of the magnetic observatories and observations in atmospheric electricity and special electric and magnetic research.

Director of upper-air research.—Dr. Oliver L. Fassig, who shall have charge of balloon and kite observations and the discussion thereof. Messrs. Schultz and Fassig will arrange for cooperation in the taking of electrical observations from kites.

Observer in charge of property.—Mr. Charles S. Wood, who, under the general control of the supervising director, shall have charge of the premises, repairs, improvements, heating, and lighting, power plants, horses, and vehicles, meteorological observations and forms, and the mess and the forage funds. He may correspond direct with the central office in regard to the details of the work with which he is charged.

Each official will discuss his own observations and, so far as possible, correlate the events shown by his reports with those indicated by the observations of others. There will be a cheerful willingness to cooperate for the general good of the institution and the advancement of the science of meteorology.

There will be no publication in the bulletins of the Bureau of mere argument of abstract theories in science. The place for such is in scientific publications, which are open to all. No more data will be published in the announcement of results than are necessary to make clear the subject-matter, except when the data are new.

The prime object of the institution, which is the taking of observations and the gathering of data with which to make experimentation and prosecute research, will be kept in mind. Unpublished data will be open to the use of all recognized investigators, and cooperation with other scientific workers will be encouraged. Questions that may directly or indirectly be of value to the science of meteorology will be proper subjects for investigation. The field of inquiry will therefore be a broad one.

(L. R. 8360 and 8847, 1905.)

WILLIS I. MOORE,
Chief U. S. Weather Bureau.

Approved:
JAMES WILSON,
Secretary of Agriculture.

[Instructions Nos. 89 to 97, inclusive, current series, not for general distribution.]

The CHAIRMAN. How about the West Indian service; are you getting good results from that?

Professor MOORE. No; we ran those West Indian stations for three years, until we got three years of full, complete record, from which we could answer inquiries. Then we closed those stations. We open them in June and close them in December. They remain closed about five months. We do not run them during the season when hurricanes are not dangerous; and we leave the property there in charge of our consuls, lock the stations up, and bring the men back here to work.

The CHAIRMAN. Who are these men that you send down here for this work; where are they taken from?

Professor MOORE. They are all experts, taken from our various stations. We use the young men. We never send a man down there of less than two years' or eighteen-months' service.

The CHAIRMAN. When do you send them there; in June?

Professor MOORE. Yes.

The CHAIRMAN. And keep them there until when?

Professor MOORE. Until December; and they are taken out of the station force. They are usually young, unmarried men. When they go they get an allowance of quarters, and they get a dollar a day allowance for subsistence while they serve in the Tropics. That begins when they reach the station and ceases when they leave the station, and their salaries do not change. Under the old method, we used to change their salaries every time we sent them down there, increasing them when we sent them down there and reducing them when we brought them back. In this way there is a certain allowance that belongs to those West Indian stations that they get.

Mr. SCOTT. Can you depend absolutely on there being no hurricanes in that region between December and June?

Professor MOORE. Yes, absolutely; or practically so. It is perfectly safe in that period.

The CHAIRMAN. You had no hurricane this year, did you, that struck our coast?

Professor MOORE. There was no hurricane that did any damage in the West Indies, but there were several that began in the West Indies and that we were able to track that did not become destructive until they reached our South Atlantic coast. But when they got within the region of Florida we had three this last season that were very severe on our coast line, extremely so; there was some loss of life and property, and there would have been millions of loss of property if it had not been for the warnings. There has not been a year that those stations have not given us warning of the coming of several storms: but many of those storms do not reach dangerous intensity until they begin to recurve. They always recurve in latitude between 26 and 30, their track being a parabola with a bend in about that latitude.

The CHAIRMAN. Before I leave that subject, tell me about the cost of the West Indian service, in round figures.

Professor MOORE. It will be pretty hard for me to answer that.

The CHAIRMAN. Well, approximately—between what; twenty-five and fifty thousand dollars, or twenty-five and thirty?

Professor MOORE. Well, the telegraphing, I should say, costs about \$50,000. You gave us \$75,000 there in the beginning.

The CHAIRMAN. Yes.

Professor MOORE. Just to equip those stations during the war. I think then you continued it at \$50,000, did you not? That is my recollection.

The CHAIRMAN. Yes. Now the whole thing goes together in one lump sum?

Professor MOORE. Yes. Now, I have saved something by closing those stations five months in the year. By bringing those men back here and putting them at work in our service here I make some saving on that over what it used to cost before, and of course that has gone into the general fund. I have utilized it in one way or another.

The CHAIRMAN. How do the men stand that climate? That is the hot season down there, is it not?

Professor MOORE. Yes. Nearly all of them come back thin. The northern man does not thrive in the Tropics; that is certain.

Expenses incurred at Mount Weather, Virginia, for all purposes, from September 22, 1902 (date of purchase of land), to January 20, 1906.

Buildings and land.....	\$61,613.14
Furniture and furnishings.....	5,841.04
Telephone and telegraph lines.....	1,896.48
Roads, fences, and ground improvements.....	5,290.78
Hauling of building material and supplies.....	7,123.98
Running expenses, supplies, etc.....	5,658.99
Freight and express.....	306.32
Instruments.....	11,525.82
Machinery and tools.....	12,771.19
Horses and wagons (3 horses, \$360; 2 farm wagons, \$119; 2 delivery wagons, \$226; 1 heavy spring wagon, \$191; 2 saddles, \$82; miscellaneous equipment, \$369).....	1,347.00
Miscellaneous labor.....	5,681.93
Total.....	119,056.67

The CHAIRMAN. I understand, then, that the statement made by Professor Moore before your committee in December, 1902, to which you have called attention, and the somewhat extended explanation or discussion that appears in the hearings of 1906, represent the only occasions when Professor Moore ever called the attention of the Agricultural Committee to what he referred to in his report in 1903 as this "research institution?"

Mr. WADSWORTH. To the best of my recollection, that is true. I might further state that I can not find in any other hearings any reference to Mount Weather.

The CHAIRMAN. Then I understand you made a careful examination of all your hearings?

Mr. WADSWORTH. Yes, sir.

The CHAIRMAN. And the testimony of Professor Moore in those hearings for the purpose of ascertaining whether any other references were made?

Mr. WADSWORTH. Yes.

The CHAIRMAN. And have not been able to find any other references?

Mr. WADSWORTH. None made to Mount Weather at all.

The CHAIRMAN. Have you any recollection of ever having had any conversation with the Professor, with reference to this research institution at Mount Weather, outside of these hearings?

Mr. WADSWORTH. I have not the slightest recollection of ever having any conversation with him on that point—as to what he was doing there, or anything about it.

The CHAIRMAN. So, as a matter of fact, the Mount Weather institution, or research institution, or observatory, whatever it is, had been actually started and some considerable money expended before you knew anything about it?

Mr. WADSWORTH. Before we realized he was going on with it; yes. My point is this: That I do not think the committee ever intended to give the authority to build such an institution there. We never had that intention.

The CHAIRMAN. Then you never concurred with him in the idea that he would be authorized under that appropriation to enter into such construction?

Mr. WADSWORTH. Not to my knowledge. I have not the slightest recollection of it.

The CHAIRMAN. I notice that in his hearing before you in 1902 he refers to the Yellowstone Park. Let me have his exact language.

Mr. WADSWORTH. "Mr. Moore. Yellowstone Park you had in last year."

The CHAIRMAN. That evidently referred to the appropriation bill for the fiscal year ending June 30, 1902?

Mr. WADSWORTH. Yes.

The CHAIRMAN. I find on looking over that appropriation bill that it specifically authorized the construction of the following stations: Atlantic City, N. J.; Hatteras, N. C.; Fort Canby, Wash.; Fort Crescent, Wash.; Tatoosh Island, Wash.; Point Reyes, Cal.

Mr. WADSWORTH. Yes; I remember those.

The CHAIRMAN. And that is all that were authorized to be constructed. So evidently that was an inadvertence on the part of the Professor?

Mr. WADSWORTH. He named all those; and yet I have a very distinct recollection that in the hearings before the committee a station at Yellowstone Park was mentioned.

The CHAIRMAN. But not included with those?

Mr. WADSWORTH. Mr. Moore was evidently mistaken about its being put definitely into the law.

The CHAIRMAN. I will read a short extract from Professor Moore's examination before our committee, on this precise point, so that you will appreciate the point of the inquiry I have made (p. 187):

The CHAIRMAN. Are we to understand, Professor, with reference to the plant to which your attention has been called, on Mount Weather, that so far as that enter-

prise is concerned the Agricultural Committee were consulted with reference thereto before you embarked thereon, and that the regular development from that time on has been after conversations with and understandings with them?

Professor MOORE. That is the understanding; after a full discussion and understanding with that committee, and with their belief that my authority under the direction of the Secretary was ample to go ahead with that work.

The CHAIRMAN. That was your view of the construction of the law, and they concurred with you in that construction?

Professor MOORE. Yes.

The CHAIRMAN. And that was without any protest on the part of the committee? Was there any dissenting opinion?

Professor MOORE. Not one.

The CHAIRMAN. So that the Committee on Agriculture have, so far as their attention has been called to the subject, acquiesced in this, and the subject was called to their attention in the beginning?

Professor MOORE. The hearings will show that this has been thoroughly gone over.

The CHAIRMAN. And it is a fact that their attention was called to it at the inception?

Professor MOORE. Yes.

The CHAIRMAN. And that there was no protest made so far as you know by any member of the committee?

Professor MOORE. No, sir.

The CHAIRMAN. Against the construction placed on the statute or the inauguration of the enterprise?

Professor MOORE. Yes; that is true.

It was because of this that we wanted to get the view of the committee as to their understanding of the situation. Have you any changes to make in that statement?

Mr. WADSWORTH. As I said before, the first time that Mr. Moore ever called attention to the Blue Ridge Mountain station was in that testimony which I have read from the hearings of 1902—December 8, 1902. That was the first time the committee ever knew anything about it; and you see by his own language that it is a change from some station to Blue Ridge Mountain; that he first contemplated using the money for another station, and changed from Yellowstone—or, if that is a mistake, from some other station—to the Blue Ridge. So you see that was the first knowledge the committee had of the contemplated building at Bluemont.

The CHAIRMAN. I ought to go a little further in his answer from which I last quoted:

And my mind is very clear for this reason, that after I had explained the necessity of taking up experimentation they seemed to be anxious that I should begin such experimentation, and the chairman asked me how much was necessary to be set aside for the purpose—I do not know whether that was taken down by a stenographer or not—and my answer was that I believed that the authority was ample without any specific amount being set aside for Mount Weather, and they then read that authority for so many buildings, and they said they thought that that authority was wide open to do anything that I wanted to do.

Mr. WADSWORTH. I can only say, in answer to that, that I have not the slightest recollection of that, and that no member of my committee with whom I have talked has any recollection about it. But if my recollection is at fault, or there is any doubt about it, I would like to have you call before you at least the subcommittee, and ask them if any one of them realized or thought for a minute that there was contemplated an expenditure up there of over \$200,000. On the contrary, I think you will find that each one of us thought that it meant simply the establishing of an ordinary Weather Bureau station at Bluemont, like the ones at Wytheville and the other points in the Blue Ridge Mountains. Of course, it is a matter of recollection,

but I am quite positive as to my own. I have not the slightest recollection of that conversation, either privately or before the committee. My recollection may be at fault; Professor Moore seems to be very positive about it.

The CHAIRMAN. Professor Moore claims that under this appropriation, reading as you had it before your appropriation bill for this year, he could go out anywhere in the United States and start another plant that would cost \$150,000 or \$250,000.

Mr. WADSWORTH. I can only say that the Committee on Agriculture never thought so, and does not think so now.

The CHAIRMAN. And he went so far as to say that he could build six observatory buildings on one lot, if he saw fit to do so. This was simply his view of the construction of the law.

Mr. WADSWORTH. Yes.

The CHAIRMAN. He having made this statement, and we having examined into this subject, we felt it rather incumbent on us to have your committee know what the situation was, so that any statement that you might like to have made in relation to it would go into the records. We would be very glad to hear any member of your subcommittees or anyone else on the part of your committee that you would care to have heard on the subject. If you will give us the names of the subcommittee who had this particular Weather Bureau proposition in charge—

Mr. WADSWORTH. I can find out exactly by my records who were the subcommittee in that year.

The CHAIRMAN. We will hear all of the subcommittee, or the chairman of the subcommittee, as you prefer.

Mr. WADSWORTH. I was chairman of the subcommittee.

The CHAIRMAN. Then, if you will give us the names of those subcommittees for 1902, 1903, 1904, 1905, and 1906, we will arrange to have them come in and let them state the matter as they understand it.

Mr. WADSWORTH. Very well.

The CHAIRMAN. Professor Moore could not be present this morning. I inquired of Mr. Zappone, because I assumed that the Professor would perhaps prefer to be here to hear the statement.

Mr. WADSWORTH. I would prefer, myself, to have him here, because he might bring something to my mind in which my recollection is at fault. Of course, I can only state, under oath, my recollection of it.

The CHAIRMAN. Certainly; that is all we want. Now, the Professor will be back here about the 3d of February. We will not conclude our investigations until he comes back; and after he comes back if he would like to be present and examine you or any other member of your committee, we would like to have the parties present for that purpose.

Mr. WADSWORTH. Certainly.

The CHAIRMAN. I will make a part of the record that portion of Professor Moore's report for the year 1903 in which he refers to the Mount Weather research observatory, and will follow it by extracts from all of his reports, showing everything the Professor has said in relation to the Mount Weather observatory up to date.

Extract from the report of the Chief of the Weather Bureau for 1908.

MOUNT WEATHER RESEARCH OBSERVATORY.

The Weather Bureau is so far convinced of the importance of finding out the laws of this cosmical physics, by which alone the problem can be conclusively solved, that it has been thought proper to found a research observatory at Mount Weather, on the crest of the Blue Ridge Mountains, about 6 miles from Bluemont, Va., and equip it suitably for these investigations. Professor Bigelow has recently been placed in charge of supervising the plans for its construction and development upon the best modern principles. It is evident that such an institution, having its beginning in the early years of the twentieth century, will have an increased usefulness as the years go by, if it is organized according to the demands of the best science. It will require fine instruments and able students if it is to command the respect of the scientific world. The subject of solar physics has already grown to such proportions that the British Association for the Advancement of Science has set off a solar physics section from astronomy and mathematics; the solar physics observatory at South Kensington, under the able directorship of Sir Norman Lockyer, is putting forth valuable results; the solar observations by the Italians for the past thirty years have become invaluable as a basis for these studies; the observatory at Kalocsa, Hungary, and that at Zurich are known to all students for their important publications. Less directly, several of the great astronomical observatories are deriving some of their most valuable discoveries in astrophysics, which is simply another name for stellar meteorology. Thus Potsdam, Paris, Lick, Yerkes, Harvard, and other institutions are working zealously along these lines and filling out the realm of human knowledge in a fashion undreamed of a generation ago. It may be asked why, with all this wealth of material being secured in other places, it should be important for the Weather Bureau to enter upon these studies as well. The answer is simple. These observatories, for one thing, specialize along certain lines, and it is evident that there should be at least one institution in the United States where these results are brought together and studied side by side, so that their combined result at a given time can be worked out harmoniously and correlated with the prevailing weather conditions. Furthermore, the publications of these several observatories are issued from the press as much as two to four years after the observations are actually made, so that it is obvious that these late reports can have little value in practical forecasting. We have no intention to enter upon the advanced research problems which rightly belong to specialists, but rather to adapt to the uses of the meteorologist and the forecaster such portions of the well-known types of observatories as seem to be practicable for the immediate uses of the Weather Bureau.

Specifically, the plan in mind contemplates the development of an observatory as indicated in the following statement:

(1) An observatory building is in process of erection at Mount Weather, which is well adapted as a school of instruction and for making observations of the ordinary kind with the common meteorological instruments, barometers, thermometers, wind and rain gauges, nephoscopes, theodolites, and actinometers. The first floor is for administration, the second for living quarters, the third for laboratories, and the roof for observing.

(2) Plans are being prepared for a plant adapted to generate large quantities of hydrogen for balloon ascensions, including a shop for the construction of balloons and kites. The ascensions will be limited to about 4 miles in height, our immediate purpose being to measure the temperatures and thermal gradients, which will enable us to construct daily isothermal charts on the two upper planes already described, so as to provide isotherms as well as isobars on the high levels. It is proposed to make a complete series of ascensions first at Mount Weather, and afterwards in different portions of the United States, in order to observe the temperature conditions in all classes of cyclones and anticyclones. We may attempt some high ascensions, up to 10 or 12 miles from the ground, when our experience and other conditions warrant; but since storm movements are practically limited to the strata within 4 miles of the ground, the first group of ascensions will be to moderate elevations.

(3) It seems important to install a high-grade bolometer for measuring the invisible solar radiation, which is thought by some students to be largely responsible for the actual temperature of the upper atmosphere. Also, a first-class spectro-heliograph is required for keeping a record of the solar prominences, faculae, and spots prevailing at the time of making our weather forecasts. These two instruments are the essentials of an efficient solar physics observatory, and would require the services of an able student of physics to bring out the best results and discuss them efficiently in suitable reports.

(4) These records should evidently be supplemented by an observatory equipped with modern instruments for observations in atmospheric electricity and in magnetism, and we note that a number of valuable new instruments have been invented in recent years which we can use. The special subject of this research is the behavior of ions in the atmosphere as forerunners of weather conditions.

Generally, the idea is to bring together for study under one direction the most valuable and practicable observations having a direct bearing on the higher meteorology, which is now engaging the attention of many able physicists and astronomers. In this field are found the best examples of physical and mathematical problems, because it is nature's great laboratory. The atmospheric conditions at Mount Weather are superb, the site being 1,800 feet above the sea level, on a ridge overlooking the wide Shenandoah Valley to the west and the plains of Virginia to the east. An equipment at that place, such as is contemplated, will induce a great scientific activity and generate an intellectual atmosphere highly favorable to the best scholarship. The assistants in charge of the various lines of work will form a strong corps of teachers, who will instruct a new generation of men in the great problems of meteorology, which are destined to occupy the attention of mankind in an increasing ratio with the lapse of time. If the equipment be made up of the very best instruments and able students secured to use them, and especially if patience be manifested in allowing the data to accumulate and be studied in the proper way, an improvement in forecasting for America should be assured. This institution is to be planned for continuous work in the future, and it is not supposed that its effect on forecasting will be immediately manifest, because of the difficulty and complexity of the problems involved. One thing is certain, that the founding of such a research institution is the true scientific way to provide for the future, in assurance that the natural difficulties will finally yield to human persistency and intelligence.

Extract from report of the Chief of the Weather Bureau for 1904.

THE MOUNT WEATHER METEOROLOGICAL RESEARCH OBSERVATORY.

At Mount Weather, Va., it is proposed to make and send out the apparatus for the exploring of the atmosphere to altitudes of 3 to 10 miles. In this work it is probable that many balloons will be simultaneously liberated from different stations, so as to get records of storms and of cold waves from their four quadrants. With the knowledge thus gained of vertical gradients of pressure and of temperature, it will doubtless be possible to gain a better understanding of the mechanics of storms. This exploration will be useful in determining how near right are those who believe that change in temperature other than seasonal is mainly a function of the mechanics of the lower atmosphere—that portion lying below the 10-mile level; that in the study of those aberrations of climate called "weather" investigators need concern themselves only with the atmosphere near the earth; and that variations in the condition and in the intensity of the many forms of solar radiation are inappreciable in their effect on the weather of the earth.

With observations from the magnetic, the electric, and the solar physics observatories which the Department is now building, and which will be equipped with the most approved appliances, opportunity will be given to those who believe that the cyclonic or anticyclonic whirls that constitute storms or cold waves are mainly the result of changes in the amount or intensity of some form of solar radiation. It is the opinion of the writer that the synchronism of changes in the activity of the chromosphere of the sun and the weather of the earth has not yet been established with sufficient definiteness to be of benefit to the forecaster, but a working hypothesis has been formulated which stimulates thought, study, and investigation. This fact must be credited to the patient work of Prof. Frank H. Bigelow. Even those who differ from him in their conclusions relative to the association between astrophysics and meteorology must admit that the fertility of his thought and his earnest seeking after the problems which, when solved, shall raise meteorology from empiricism to a closer approach to an exact science, have been highly beneficial. The study of storms has too long been made from a single viewpoint. Daring minds are needed, even those that are willing to take a considerable hazard in the hypotheses which they are willing to lay down and attempt to demonstrate; for to doubt is to investigate. New truths are usually discovered by working inductively along conventional lines, but some of the greatest principles in nature have been made known to the world by deductive reasoning and by the assumption of a hypothesis that could not at the time be demon-

strated. Due deference must be given to each other's opinions, and all must strive earnestly for the elucidation of the many difficult problems that now confront the meteorologist.

LINES OF PROPOSED INVESTIGATIONS.

It is proposed to make the research at Mount Weather catholic in its broadness; to look for the truth, and not to despise its source or the means of its conveyance; to discuss meteorological observations from the point of view of their relations to solar physics; to select meteorologic and magnetic elements and compare them with solar observations; to carry on research in the allied subjects of radiation, atmospheric electricity, ionization of gases, radioactivity, etc. Progress in knowledge of the effects of the sun's actions upon weather conditions depends upon introducing more refined processes than have generally been assigned to meteorology. It is hoped to determine the nature of the alliance between meteorology and solar physics. The atmosphere of the sun and of the earth, together with the connecting radiations, will be studied as one branch of science having common interests, which may be designated as cosmical meteorology.

In the seven buildings at Mount Weather the Weather Bureau will have the most approved apparatus for measuring atmospheric electricity and magnetism, for measuring the solar radiation in the spectrum, for registering the sun-spot areas, the prominence output, and the extent of the faculæ. These are all valuable as registers of the solar energy, which, falling upon the earth, may play a part in stirring up the atmosphere and producing our weather.

INTERPRETING THE LANGUAGE OF THE SUN.

The climate and crop conditions from year to year depend largely upon the invisible and subtle solar radiations, known to exist as waves, like those used in wireless telegraphy. The space between the sun and the earth—that is, the cosmical ether—is filled with wireless messages which science is laboriously learning to interpret. Its votaries do not understand the solar code very well, and the process of deciphering it is like that of learning to read the Babylonian inscriptions, namely, by putting this and that together, learning to read a bit here and there, by intercomparisons, trial, and failure, till at length the language of the sun shall be understood. The time may come when it may be possible to interpret the seasonal weather from year to year in advance. It has not yet arrived. The sun moves leisurely through its cycles and the terrestrial conditions seem to follow loosely. At present all available information concerning these matters comes in scattered form from observatories, in reports two or three years old. It is necessary, therefore, to have instruments, trained research observers and computers, and a discussion of results, subject to the direct control of the Weather Bureau.

BUILDINGS COMPLETED AND PROJECTED.

During the past year the main building of the Weather Bureau observatory has been completed, the power plant and the building from which balloon ascensions and kite flights are to be made have been erected, and the magnetic building started. It has been found that the rocks are entirely free from magnetism, and that the field is uniform, so that it is a suitable place on which to locate a magnetic observatory. A physical laboratory for electrical and radioactive effects is being planned, the erection of which will take place during another year. Finally, a comprehensive physical observatory for photographing the sun directly and through the spectrum, for measuring the radiation energy by actinometry and bolometry, with their allied equipment, will be required. This complex institution must grow up slowly; as plans can be matured along the best modern lines, our assistants must be trained to work in several lines on a harmonious general plan, and the results must be carefully studied as the science progresses.

Extract from the report of the Chief of the Weather Bureau for 1905.

Finally, three years ago the Bureau began the establishing, at Mount Weather, Va., of an institution devoted purely to meteorological research.

The present appropriation for the support of the Bureau is \$1,392,990. This is the amount to be expended during the current fiscal year in applying the inexact science of meteorology to the commerce and the industries of the United States, and to the

saving of human life. A knowledge of the coming weather enters so intimately into every contemplated human action that the question is often asked: What are the prospects for further improvement in the accuracy of weather forecasts, and can the seasons ever be foretold? The answer is that the Government has a corps of forecasters, the members of which are the survivors of the fittest in a thorough system of elimination by competition. Since they are now applying all of the knowledge of the atmosphere that has been revealed, little hope for material improvement in their work can be held out until a substantial addition is made to the pure science of the problem. This can only come through experimentation, study, and research. With 200 stations engaged in applying the science, it is a wise economy to devote at least one of them to the work of adding to the knowledge that we are annually spending nearly a million and a half of dollars to apply. Accordingly we have endeavored to lay out a plan of study and research leading to an increase in our knowledge of the laws governing the atmosphere such as should eventually enable our successors, if not ourselves, to add to the accuracy of weather forecasts and to make them for a longer period in advance.

The progress of every branch of science is necessarily slow. Four hundred years of unremitting observation and study were necessary in order to bring astronomy up to its present high standard of accuracy, and it must be expected that the complex problems of meteorology will require time for their elucidation.

The last thirty years has witnessed such remarkable progress in new branches of science that fields of research formerly closed to the meteorologist are now open to him and justly can not be neglected. The discovery of the remarkable properties of radium has opened up a field of research relative to the ionization of gases, and this has led to a complete revolution in our ideas relative to atmospheric electricity. The studies of Professor Langley with the bolometer have led to the perfecting of similar instruments by various European and American students, so that now the analysis and measurement of sunshine and the determination of the nature and influence of the radiations that come from the sun form a fundamental field of study for the meteorologist. Recent observations have led to the discovery of a possibly large variation of the amount of heat that is received from the sun or an equivalent possible variation in the transparency of the highest portions of the earth's atmosphere, a discovery confirmed by corresponding observations in Switzerland. A year of special cloud observations all over the world has led to the downfall of erroneous views as to the general circulation of the atmosphere, while mathematical methods have been perfected that give promise of being directly applicable to the rigorous discussion of these complex motions.

In all these studies the Weather Bureau has hitherto taken a subordinate part, whereas in matters of so-called practical meteorology it has always occupied the leading position.

In order that this country may do its share toward the advancement of meteorology along the lines that specially relate to conditions in America, it is imperative that the Weather Bureau should establish an observatory for its own special research work. It would seem a severe criticism to say that the United States Weather Bureau has 200 stations for routine observations and spends such a large amount of money annually for routine work without doing anything for the permanent improvement of the science upon whose development its efficiency depends. It was long since stated that the highest efficiency in any art implies a perfect knowledge of the higher science behind it.

We have therefore secured a piece of land and inaugurated work at an establishment that is intended to respond to the present and prospective needs of meteorology. We have called this the Mount Weather Research Observatory, and have organized it on a broad and elastic basis so that it may from year to year expand with the growing knowledge of our needs. The other weather bureaus of the world have been inclined to make research more prominent than practical routine. Their appointments, their promotions, and internal organization, and their whole animus, are in harmony with the principle that in the present state of meteorology research is more important than forecasts; that to establish a new law is better than to forecast rains, frosts, or storms; that, in general, our knowledge of the atmosphere and its mechanics needs to be increased so that we may venture upon forecasts that will establish a new standard of accuracy.

In order to prosecute the researches contemplated at Mount Weather, we have established there a plant especially adapted to atmospheric research. By means of balloons and kites, the temperature, moisture, and movements of the air at great heights will be ascertained. The absorption of solar heat by the atmosphere will be measured by means of the pyrheliometer and actinometer. The dissipation of solar light and heat will be determined by the polariscope. The special analysis of the sunbeam will be

carried out by means of the bolometer and spectrometer. The electric condition will be determined by means of the electrometer, and the radio-activity, or ionization of the air, by means of the dissipation apparatus of Ebert. To all this we have added apparatus for studying the relations to the atmosphere of the magnetism of the earth, the temperature of the soil, and even the motions of the earth as shown by the seismographs. All these phenomena have been shown to have a more or less intimate connection with meteorology.

In so far as aerial research may require it, sounding balloons will be liberated from many of the weather stations in distant parts of the country in cooperation with those at Mount Weather, since it is considered very important to know the condition of the atmosphere above the land every day of the year up to the greatest attainable height, especially during the passage of storms and cold waves. These so-called sounding balloons may attain altitudes of 20 miles; through them a record will be obtained of the winds and temperatures at that height as well as throughout the whole intermediate strata. Therefore Mount Weather may be expected to do as much for the science of meteorology and the future improvement of the service as the service has already done during the past thirty-five years for the material interests of the United States. As this country led the world in the practical application of meteorology, it is desired henceforth to lead in the development of the science itself.

In addition to the observational side of the above-mentioned studies it is absolutely necessary to provide conveniences for experimental work; that is to say, a physical laboratory in which to investigate all questions that yield to treatment by experiment as distinct from pure observation. There is also needed a power house and an electrical installation for the manufacture, by the electrolytic process, of the hydrogen gas for the use of balloons; this process has been demonstrated to be by far the most convenient and economical method of obtaining large quantities of pure hydrogen. It has even been necessary to stimulate the manufacturers of india rubber in order to secure a material that will retain its elasticity at the very low temperatures to which the balloons are exposed at great altitudes.

As meteorology is essentially a study of the physics of the atmosphere, the physical laboratory becomes the central life of the institution. A capable physicist has therefore been selected as the supervising director of the whole institution, and men of the highest talent for each line of coordinated research.

Similar institutions designed to carry on one or more of these lines of study have been established at Potsdam near Berlin, Pavlovsk near St. Petersburg, Montsouris and Parc St. Maur near Paris, and Kew Observatory near London, but we have combined in the Research Observatory at Mount Weather the principal duties that devolve upon all those observatories, with the special kite work and balloon work carried on by the famous observatory for dynamic meteorology established at Trappes near Paris, by Teisserenc de Bort, the private observatory of Mr. A. L. Rotch, at Blue Hill near Boston, and the new institution established by the government of Prussia, at Lindenburg, about 40 miles southeast of Berlin, where aerial research will be prosecuted under Assmann.

As in the case of all these establishments, so also with the institution at Mount Weather, the employees must necessarily live close by their apparatus, and provision must be made for all the ordinary needs of domestic life precisely as is done in all large astronomical observatories, and in military establishments. This has been accomplished economically and in accordance with established usage.

As it may happen that others, not employees of the Bureau, may be engaged in research that is of importance to the Weather Bureau, it is contemplated to extend to such every facility for the prosecution of their studies at this institution, in the belief that the Bureau will receive great advantage from the association of distinguished scholars and experts.

WORK OF THE YEAR, WITH RECOMMENDATIONS.

THE MOUNT WEATHER RESEARCH OBSERVATORY—BUILDINGS COMPLETED AND PROJECTED.

Work on both buildings and grounds has been pushed as vigorously as circumstances would permit. The administration building and weather station was completed and equipped last fall and observations begun, which have since been used daily by the forecasters at Washington. Two magnetic observatory buildings have been completed during the year, one for absolute and one for differential determinations of the elements of the earth's magnetism. The instruments for both magnetic observatories are now being installed. The power house, which was completed during the last fiscal year, has been fitted with engines, generators, etc., for use in aerial work. All of the large machines were in place by the end of March, 1905, and work was then resumed on the revolving kite shelter, which was completed before the end of the fiscal year.

Work was begun on the building for the physical laboratory in July. There are still some difficult questions regarding the best plans for the solar physics work, but as a final decision is not required at present, more time will be employed in consultation.

In planning the power house and kite shelter and in the installation of machinery in the first named, valuable aid has been rendered by Prof. Charles F. Marvin.

The schedule of apparatus for the solar physics observatory has been submitted to prominent instrument makers for estimates as to cost of construction.

The subject of solar radiation appears to be so important that early in the year the climatologist, Mr. H. H. Kimball, was instructed to prepare himself to take up this line of research at the Mount Weather Observatory. Through the courtesy of Secretary S. P. Langley, of the Smithsonian Institution, arrangements were made for the detail of Mr. Kimball to the Astrophysical Observatory for instructions and actual work in connection with the spectro-bolometric apparatus devised and used at that observatory. This detail commenced on May 1, 1905, and will probably continue until October of the same year. The practical experience thus gained by Mr. Kimball should be of great value to the Bureau when the study of solar radiation is taken up in earnest.

Observations with the Angström pyrheliometer and the Pickering polarimeter have been continued at Washington throughout the year. A discussion of the results will be found in the Monthly Weather Review for March, 1905. The Angström instrument has been carefully compared with the actinometers used by the Smithsonian Institution. It is hoped that this will enable us to connect European actinometer work with Professor Langley's spectro-bolometric work, and perhaps to thus obtain some knowledge of variations in solar radiation over a considerable period of time.

METEOROLOGICAL OBSERVATIONS AT MOUNT WEATHER.

Regular twice-daily observations of the several meteorological elements were begun at Mount Weather, Va., in November, 1904, and have been continued uninterruptedly since that time.

PERSONNEL OF MOUNT WEATHER RESEARCH OBSERVATORY.

The research staff has been strengthened by the appointment of William J. Humphreys, Ph. D., Johns Hopkins University, and late professor of physics in the University of Virginia, to be supervising director at Mount Weather, to take effect July 1, 1905, and the recall of Mr. Louis G. Schultz from temporary detail in Argentina in connection with the equipment of magnetic observatories in that country.

Mr. Herbert L. Solyom, recently of the United States Patent Office, has been appointed as a special aid to Professor Humphreys in studies of radiation, ionization, and solar physics.

The organization of the Mount Weather Observatory as at present constituted is as follows:

AT WASHINGTON.

Director.—The Chief.

Board of advisers.—Prof. Cleveland Abbe, Prof. Charles F. Marvin, Prof. Frank H. Bigelow (chairman), Prof. Edward B. Garriott, Prof. Henry J. Cox, Prof. Alfred J. Henry, Prof. Alexander G. McAdie, Prof. Harry C. Frankenfield, and Prof. William J. Humphreys.

AT MOUNT WEATHER.

Supervising director.—Prof. William J. Humphreys, who shall have supervision in detail of all work in the physical laboratory and solar physics observatory and general, rather than detailed, supervision of other researches. He will aid the research directors in matters wherein his knowledge may be of assistance, and will be an adviser rather than a director of their research, although in all matters of cooperation between research directors he will have the controlling voice. He will have charge of the discipline of the institution, referring to the Chief such matters as can not be settled at the station.

Mr. Herbert H. Kimball, who, through the courtesy of Prof. S. P. Langley, is receiving special training in the use of the bolometer in the Smithsonian Institution, will be Professor Humphrey's principal aid in solar physics and Mr. Herbert L. Solyom, who by the kindness of Prof. E. B. Frost is doing special work at the Yerkes Observatory, will be an additional assistant.

Director of magnetic and electric research.—Mr. Louis G. Schultz, who shall have charge of the magnetic observatories and observations in atmospheric electricity and special electric and magnetic research.

Director of upper air research.—Dr. Oliver L. Fassig, who shall have charge of balloon and kite observations and the discussion thereof. Messrs. Schultz and Fassig will arrange for cooperation in the taking of electrical observations from kites.

Observer in charge of property.—Mr. Charles S. Wood, who, under the general control of the supervising director, shall have charge of the premises, repairs, improvements, heating and lighting, power plants, horses and vehicles, meteorological observations and forms, and the mess and forage funds. He may correspond direct with the central office in regard to the details of the work with which he is charged.

Each official will discuss his own observations and, so far as possible, correlate the events shown by his reports with those indicated by the observations of others. There will be a cheerful willingness to cooperate for the general good of the institution and the advancement of the science of meteorology.

There will be no publication in the bulletins of the Bureau of mere argument of abstract theories in science. The place for such is the scientific publications, which are open to all. No more data will be published in the announcement of results than are necessary to make clear the subject-matter, except when the data are new.

The prime object of the institution, viz. the taking of observations and the gathering of data with which to make experimentation and prosecute research, will be kept in mind. Unpublished data will be open to the use of all recognized investigators, and cooperation with other scientific workers will be encouraged. Questions that may directly or indirectly be of value to the science of meteorology will be proper subjects for investigation. The field of inquiry will therefore be a broad one.

PROBLEMS IN INSTRUMENTAL EQUIPMENT AWAITING SOLUTION.

For a number of years Prof. Charles F. Marvin, the official in charge of the instrument division has endeavored to give a portion of his time and efforts to the study of problems which are directly related to the development of new apparatus and the perfection of the equipment now in use. Such efforts seemed to be indispensable, in order to keep pace with the demands for better instrumental devices. Thus far, however, while the value of such work has been conceded, it has had no recognized place or funds in the yearly schedule, and much of the little that has been done was accomplished only by effort during extra hours when the official in charge of the instrument division could be free from the constant interruption incident to the daily routine. During the last ten years the extension of the service with respect to the instrumental equipment of stations has been very great. In 1895 only about 361 automatic instruments of all kinds were in operation at stations. The number at the present time is 1 195.

Instrumental apparatus has been greatly improved and perfected; many new designs have been brought out and other scientific work accomplished—such, for example, as the partial determination of the constants of the anemometer equation and the relation of wind velocities and pressures, the determination of vapor pressures at low temperatures, studies upon the mechanics and equilibrium of kites, etc.

At no time in its past history has the Bureau assumed such an attitude toward the solution of the scientific problems of meteorology as at the present time. Extensive preparations are being made for a comprehensive study of difficult matters that may require years for their solution. At the same time many of the simpler, but equally important, problems are pressing for attention, which it is hoped may be given in the near future.

Some of the investigations that can be taken up when the laboratories at Mount Weather are finished are as follows:

(1) Studies in the development of practical apparatus for the measurement and registration of evaporation, both in the interest of plant physiologists and irrigation engineers.

(2) Apparatus for the better observation and the automatic registration of humidity, especially at low temperatures.

(3) Apparatus for the indication at local offices of river stages. Some work was done on this problem last year, but thus far opportunity has not offered to bring the matter to a satisfactory status.

(4) Apparatus for measurement and registration of solar radiation. This embraces not only the present type of station sunshine recorders, in which improvement is needed, but also the class of instruments known as pyrliometers, actinometers, etc., such as have been employed for some years by Mr. H. H. Kimball in his special observations.

(5) Stations need apparatus for the more exact registration of the beginning and ending of precipitation. A device for this purpose has been partly worked out by Dr. Oliver L. Fassig, but important structural and mechanical improvements are required to render this device actually available for station use.

(6) Improvements are required in telethermographs. These instruments are needed at many stations.

(7) Rain gages are needed suitable for exposure on mountain ridges remote from the habitation of the observer and in the watersheds of great rivers, so that the precipitation—snow or rain—for a whole season can be collected and measured, even though regular daily observations be not made.

(8) Apparatus intended for the recording of lightning has already received some attention, but we should be in a position to discuss the structural details of these devices and their merits and demerits on a basis of real experience.

(9) The new science of seismometry has revealed how widely sensitive the seemingly rigid earth really is to vibrations in its crust and that all great earthquakes can be recorded over the entire globe by sufficiently sensitive instruments. On April 4, 1905, a great earthquake occurred in northwestern India, killing and injuring a great many people and causing the total destruction of towns and villages. The entire crust of the earth was set into elastic vibrations, which were recorded at the Weather Bureau and all over the world wherever delicate seismographs were maintained. Dr. F. Omori, secretary of the earthquake investigation committee of Japan, reports, concerning the Indian earthquake, that the large seismograph at Tokyo recorded first the waves proceeding from India to Tokyo direct via Siberia and later on those which, crossing Europe and America, reached Japan by way of the Pacific Ocean. Still more remarkable than this, the seismogram at the Osaka Meteorological Observatory showed the waves which, having reached Japan from India direct, passed on across the Pacific Ocean, America, and Europe, and finally, as it seems, returned to Japan after having made literally a complete circuit of the earth. The time required was two hours three minutes and thirty-five seconds. Certain seismic records appear to show that the crust of the earth is appreciably sensitive to great meteorological changes, and these the Weather Bureau is preparing to study with the aid of the instruments at Washington and those it is about to install elsewhere. The great delicacy of these instruments requires corresponding skill and attention in their maintenance.

(10) The Weather Bureau is almost daily in receipt of requests for information relative to high wind velocities and the relation of pressure to velocity. This is a subject in great need of further experimental investigation.

(11) Similar to the foregoing is the question of atmospheric humidity at temperatures above 100° F. The present humidity tables end at 140° F. Many inquiries are received for values at higher temperatures, such as are encountered in methods for artificial drying, etc.

The Bureau can render a distinct service to many interests by an accurate extension of the tables into the upper ranges of temperature.

There is a demand upon the Bureau for authoritative results in each of the several lines of inquiry cited above, but progress on such original work has heretofore been impossible. Now, however, with the completion of the physical laboratory at Mount Weather, and the installation of apparatus in this and other buildings at that place, these important problems may soon be attacked, with hope of success in their solution.

Extract from the report of the Chief of the Weather Bureau for 1906.

MOUNT WEATHER RESEARCH OBSERVATORY.

The meteorological work of a first-order station has been maintained throughout the year, and telegraphic reports were transmitted to the central office in Washington daily at 8 a. m. and 8 p. m.

Work on the physical laboratory was resumed in July and satisfactory progress was made during the summer and fall of 1905. The building will probably be completed early in 1907.

In the preparation for kite and balloon work, a number of important instruments have been installed and made ready for systematic work. Among these may be mentioned (1) the electrolyzer, for the manufacture of the hydrogen gas employed in the kite balloon and the small rubber balloons; (2) the apparatus for the manufacture of liquid air, employed in testing thermometers at very low temperatures; (3) the apparatus used in testing the barometers, thermometers, and meteorographs employed in connection with the kites and balloons. A medium-sized power kite reel was installed in the revolving kite house early in the year, and experimental kites flying was begun in September of 1905. During the year the stock of meteorographs, of kites, and of kite wire was materially increased; the instrumental equipment now includes eight different styles of kite—balloon meteorographs, comprising English, German, and French designs, in addition to the Marvin type heretofore used in the kite work of the Bureau, and the new Fergusson pattern used at the Blue Hill Observatory.

In April, 1906, systematic cooperation was begun in connection with the work of the International Commission of Aerial Research by flying kites on prearranged term days, and this work is being regularly maintained.

The interior finishings of the magnetic observatory buildings, the erection of the piers and the installation of the magnetic instruments were completed during the year.

The instruments for absolute observations, except the declinometer and some auxiliary apparatus were received and set up before January 1, 1906. The remaining absolute instruments were received and put in place by the end of May, and routine observations were established at the end of the fiscal year.

The Eschenhagen magnetographs were set up in the basement of the absolute observatory in December 1905 and have given a satisfactory record of the magnetic elements since that time. The Wild magnetographs were received and installed by the first of June and were being adjusted at the close of the fiscal year.

A gas plant for heating and illuminating the magnetic observatories was put in during the winter and has given satisfactory service since then.

Plans were prepared for an additional office and dwelling for the director of upper-air research, and work on this building was begun July 1, 1906.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
Washington, D. C., Friday, February 1, 1907.

The committee met at 2 o'clock p. m.

Present: Representative Littlefield (chairman), of the committee.

Present, also, Representatives Burleson, of Texas; Scott, of Kansas; and Henry, of Connecticut.

STATEMENT OF HON. ALBERT S. BURLESON.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. We have been examining the expenditures of the Department of Agriculture, and in connection with that subject we have had occasion to develop the circumstances under which the research institution at Mount Weather has been up to date constructed. Mr. Moore, relying upon the appropriations made in the agricultural bill providing for not less than a certain number of completed stations, furnished, etc., within a certain limit, and having stated to the committee that his construction of those appropriations and the fact that this research institution was being organized had met with the approval of the Committee on Agriculture, we have thought it proper to call the members of the committee who were supposed to be familiar with that subject, so that they might make such statements in relation thereto as they saw fit to make.

Mr. BURLERSON. I was a member of the subcommittee of the Committee on Agriculture which prepared the appropriation bill for the years 1904 and 1905. I am willing to state any fact within my recollection bearing on this subject, though I must confess that my recollection is rather hazy about what actually transpired.

I remember that during the course of the preparation of the first agricultural appropriation bill in which I had any part we had general hearings before the entire committee, and then, after these general hearings had been completed, the subcommittee went into executive session in the preparation of the bill. During the preparation of the bill we had frequent occasion to call before the subcommittee certain chiefs of Bureaus and heads of divisions for the purpose of interro-

(Witness: Burleson.)

gating them more in detail about specific items in the bill which were under consideration at that particular time.

I remember Mr. Moore coming before the subcommittee. I do not pretend to be able to recall everything that was said. Mr. Moore is a very fluent talker. He presents with great force, persuasive force, any matter in which he is particularly interested. I remember that in the course of the hearing that we gave him before this subcommittee he spoke of the Mount Weather scheme, if I may so denominate it. I remember he spoke of the results that he expected to accomplish, or rather what he hoped to accomplish. He spoke with great enthusiasm of the scientific meteorological researches that he intended to make there when he had completed this station. After he had concluded what he had to say, I remember some expressions used by Mr. Wadsworth. I remember he spoke of Mr. Moore's enthusiasm, and said that it was our duty to put on the brakes. He spoke of the latitude that Mr. Moore had in the expenditure of money carried in the bill.

Those are facts that I can remember. I was talking with Mr. Wadsworth yesterday or the day before about the matter. He came to me about it. I also spoke to Mr. Scott as we walked down to your committee room a moment ago. Mr. Wadsworth says he has no recollection of any statement being made by Mr. Moore as to where the money to construct and equip the Mount Weather bureau was to come from; and it seems Mr. Scott is rather hazy on the subject—that is, he has no recollection of it. At that time I had in mind asking for one of the weather station buildings, not for my own district, but for a Texas colleague of mine, and consequently was interested to know exactly how far money appropriated for that purpose would go; and I must say that the impression was left on my mind that part of the money to equip and complete Mount Weather was going to come out of the fund or item carrying in the bill the money for buildings at stations.

I can account for the fact that my recollection is a little more distinct than Mr. Wadsworth's and Mr. Scott's about this matter only because it was the first bill I had ever had any hand in preparing on the Agricultural Committee.

The CHAIRMAN. I will ask you whether this impression, which you say you received, that part of the money that was to go into the Mount Weather station was to come from the money that was appropriated for the separate stations, was received from what Mr. Moore said to all the committee, or whether it was a private conversation with yourself?

Mr. BURLESON. I talked with Mr. Moore a number of times, and I am unable to state positively about it. It may have been that I gathered the impression from him in private conversation; but my best recollection is that I got the impression in the hearings before the subcommittee while Mr. Moore was making his statement.

The CHAIRMAN. Was the language of the appropriation discussed by either Mr. Moore or yourself with reference to determining whether a fair legal construction would authorize the latitude?

Mr. BURLESON. No such discussion, as that took place.

The CHAIRMAN. It was simply a general suggestion?

Mr. BURLESON. It may have been an inference of mine, from some expression that he let fall there, that might not have fastened the attention of the other gentlemen at all, but caught mine because I was particularly interested for the reasons that I have stated.

The CHAIRMAN. Then you would not want to be understood as leaving the impression that you had expressed any opinion upon the scope or construction of the statute?

Mr. BURLESON. On the contrary, I expressed no opinion about it.

The CHAIRMAN. And that particular matter was not a matter that was either discussed or considered?

Mr. BURLESON. In the subcommittee or elsewhere. It was not discussed in the subcommittee by me or any member of the subcommittee or by Mr. Moore, or by me and Mr. Moore elsewhere.

The CHAIRMAN. Then it really amounts to a sort of a general reference on the subject of Mount Weather?

Mr. BURLESON. There was such a reference, as I have heretofore stated, on that point; there is no doubt in my mind about it.

The CHAIRMAN. The question of his authority to do what he is doing under this particular appropriation was not raised?

Mr. BURLESON. That issue was not raised; although, I say, upon that point I am quite sure that Mr. Moore made some statement there that indicated to me—it may have been an inference of mine—that a part of the money for the equipment and the construction of the Mount Weather station was being taken from the fund carried in the bill for buildings at stations.

The CHAIRMAN. How long had you been on the committee?

Mr. BURLESON. That was my first service on the committee—my first session on the committee.

The CHAIRMAN. Not on the subcommittee, but it was your first session on the whole committee?

Mr. BURLESON. I went immediately on the subcommittee to make the appropriation bill when I went on the committee.

The CHAIRMAN. So that you were not on the committee at all in 1902, when the project was started?

Mr. BURLESON. No; I was not.

Mr. SCOTT. No; you were not.

Mr. BURLESON. I take it not. My recollection is that I aided in the preparation of two bills while on the committee in the Fifty-eighth Congress.

Mr. SCOTT. That is right—the Fifty-eighth Congress.

Mr. BURLESON. The first session I was interested in securing the construction of a weather station building in my State—not in my district, but in that of a colleague—and, in fact, the second session as well as the first, because I did not get it the first session; and during the first session, when we were preparing the appropriation bill, after the general hearings had been had, the subcommittee called Mr. Moore before it. We had Mr. Moore before us several times that session, as I recollect it. I was very much impressed by what was said by these chiefs of bureau at that time. They are a very plausible lot, because they are all enthusiastic; they are all in earnest, and I would not have them otherwise.

The CHAIRMAN. They are well-informed men on their topics?

Mr. BURLESON. Yes; very well informed.

(Witnesses: Burleson, Scott.)

I believe I have stated the extent of my recollection about this matter, unless you can, by some query, direct my attention particularly to some phase of it.

The CHAIRMAN. I have no knowledge of any fact in connection with it except such as we may derive from the members interested.

Mr. BURLESON. I now recall this, and in fairness to Mr. Moore I want to state it. You will remember that at one time newspaper publications were made of charges of irregularities in the Agricultural Department, in the Bureau of Statistics, and in the distribution of garden seed to a certain farm down in Virginia; and also, at the same time, publications were made about the extravagances that were being practiced at Mount Weather.

The CHAIRMAN. I do not remember seeing that newspaper comment.

Mr. BURLESON. Whenever that was, I remember to have read (I think in the New York Herald) a statement that this expenditure had been made, and that it was made without the knowledge of Congress, and that it was a great surprise to everybody that these vast expenditures had been made, etc. I remember that at the time of these publications it occurred to me that that was unjust to Professor Moore, because nearly every statement of fact (there were some statements that were not facts) that was made in that article was within my knowledge at the time.

The CHAIRMAN. You knew some of those, at least, to be misstated?

Mr. BURLESON. There were some statements in the article that were not true.

The CHAIRMAN. Were you on the committee after the preparation of the bill for 1905?

Mr. BURLESON. I was on the committee during the first and second sessions of the Fifty-eighth Congress. What fiscal year would that be—1903-4 and 1904-5?

Mr. SCOTT. It would be 1903-4 for the first session and 1904-5 for the second session.

Mr. BURLESON. 1903-4 and 1904-5—those are the sessions that I was on the committee.

The CHAIRMAN. One session appropriated for the fiscal year ending in July, 1905?

Mr. BURLESON. Yes.

The CHAIRMAN. And the other for the fiscal year ending in July, 1906?

Mr. BURLESON. Yes.

The CHAIRMAN. And that, I think, would be the Fifty-eighth Congress.

Mr. BURLESON. That would be the Fifty-eighth Congress.

The CHAIRMAN. The first session of the Fifty-ninth Congress appropriated for the fiscal year ending June 30, 1907.

Mr. BURLESON. Yes.

The CHAIRMAN. And the last, or this, for the fiscal year ending June 30, 1908.

Mr. BURLESON. I aided in preparing the agricultural bill during the winter of 1904 for the year 1905-6.

The CHAIRMAN. Yes; that is right. I think that covers everything we wish to ask.

Mr. BURLESON. I feel sure of my statements about the bills I aided to prepare, because in the Fifty-sixth Congress I was assigned to the Committee on Foreign Affairs, in the Fifty-seventh Congress I was assigned to Foreign Affairs and Census, in the Fifty-eighth Congress I was assigned to Foreign Affairs, Census, and Agriculture, and in this Congress I was assigned to Appropriations. I acquired my knowledge of what was done with reference to the Mount Weather project while I was on the Committee on Agriculture.

STATEMENT OF HON. CHARLES F. SCOTT.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. Mr. Scott, how long have you been on the Agricultural Committee?

Mr. SCOTT. I went on the Agricultural Committee with the Fifty-seventh Congress, giving my first service in the preparation of the bill in the fiscal year ending in 1902. It was the custom in the Agricultural Committee to have quite extensive hearings during the first or long session of each Congress, and to have very much shorter hearings during the second session, so that during the first session of the Fifty-seventh Congress the hearings were very extensive. They were not so extensive in the second session, and they were long again in the first session of the Fifty-eighth and Fifty-ninth Congresses.

I should not be able, as a matter of independent recollection, to say what Professor Moore stated to us in connection with his Bureau in the first session of the Fifty-seventh Congress; but the fact that you were inquiring into this matter was brought to my attention some days ago, and I looked up the printed hearings, and find that there he refers very briefly to the fact that he had been unable to make arrangements for the construction of a station in the Yellowstone Park, as the committee, by its bill of the year previous, had directed to be done, and instead of doing that he had built one on the Blue Ridge down here at what is now known as Mount Weather.

The CHAIRMAN. That was in 1902?

Mr. SCOTT. That was in 1902. That testimony was given probably in January of 1903; and his reference to it was very brief, conveying no other idea to my mind than that it was a regular Weather Bureau station such as we were building then at an expense of eight to ten thousand dollars completing and equipping.

It must have been at least two years after that before I recall his making any detailed statement in regard to the institution at Mount Weather. I do remember that he went into it then in great detail, and I was deeply interested in it, because it seemed to me an eminently appropriate subject for appropriation.

The CHAIRMAN. Is this statement you refer to now one that appears in the printed hearing?

Mr. SCOTT. I think part of it appears in the printed hearing, although I have not looked at the hearings. It is from my recollection that I am now speaking.

The CHAIRMAN. It is the hearing of 1906 in which the extended statement appears.

Mr. SCOTT. It might have been as late as that; but, at any rate, at one of the subsequent hearings Professor Moore did go into the sub-

(Witness: Scott.)

ject in great detail, so that we all understood exactly what he proposed to do there and approximately the amount of money he expected to expend there.

Referring to the questions which you asked Mr. Burleson, I am obliged to say that I never did know where he got the money that was going into the institution at Mount Weather. It was not specifically named in any of our appropriation bills, and it was a matter of news and of great surprise to me to be told, as I was a few days ago, that most of this money came from appropriations that were made for the construction of weather bureau stations. It was certainly my understanding that when we made an appropriation for "not less than four" or "not more than five" weather bureau stations we meant that separate and complete stations were to be erected at different places over the country.

The CHAIRMAN. Within that limit?

Mr. SCOTT. Within the limit of the appropriation. It never dawned on me that any of the money appropriated by such an item could be diverted for any other purpose than the construction of a station.

The CHAIRMAN. And a completed station?

Mr. SCOTT. And a completed station. I am very clear in the recollection that the question of the construction of that item, as to whether or not it would admit of the diversion of a part of the funds to the institution at Mount Weather, was never broached at a meeting of the committee at which I was present, because, in a vague way, I wondered sometimes where Professor Moore was getting the money to put into that institution, and satisfied myself with the reflection that it must be drawn from some other appropriation bill, just as the funds for the construction of the departmental building now under erection are carried in a bill with which we do not have anything to do.

I think, Mr. Chairman, that about covers the ground as far as my recollection of it goes.

The CHAIRMAN. Then the statement made about the building in the hearing in 1902, or early in 1903, as the case may be, is the first knowledge of any kind you had about the station?

Mr. SCOTT. Exactly; and that, of course, did not—

The CHAIRMAN. That did not indicate anything as to its being a continuing project?

Mr. SCOTT. It did not indicate to me that it was anything out of the ordinary run of weather bureau stations.

The CHAIRMAN. That is, your idea is that there was nothing about that statement that contraindicated the idea that it was to be a completed and fully equipped station?

Mr. SCOTT. Nothing about that statement; no.

Of course in anything that I have said I do not wish to be understood as impeaching or attempting to impeach the testimony of Professor Moore. I have the highest regard for Professor Moore, and have no doubt that whatever statement he may have made before your committee was made in entire good faith.

**STATEMENT OF HON. E. STEVENS HENRY, REPRESENTATIVE
FROM CONNECTICUT.**

(The witness was duly sworn by the chairman.)

The CHAIRMAN. How long have you been on the Committee on Agriculture?

Mr. HENRY. Oh, a dozen years.

The CHAIRMAN. When did you first hear about the Mount Weather research institution or observatory?

Mr. HENRY. I should say possibly four years ago. Mr. Moore was before the committee to make his annual explanation, and he was asked in regard to the expenditure of money that had been given him for establishing new stations the preceding year, and he explained that one station that he had in mind—I think it was in the Yellowstone Park—was abandoned for certain reasons he gave at that time; I do not just recall the reasons now, but for good and sufficient reasons; and that he had expended that appropriation up in the Blue Ridge Mountains. I do not know that he called the place Mount Weather, but he stated that he had used that money to establish a station there. That was the first that I heard about Mount Weather.

The CHAIRMAN. And then, as you understood, the station had already been constructed in whole or in part?

Mr. HENRY. Well, yes; to a certain extent. The money had been expended there that he had thought of expending elsewhere.

The CHAIRMAN. Was anything said at that time, so far as you remember, with reference to the construction of the appropriation, and as to whether that particular appropriation authorized the beginning of a plant that should be developed from time to time, costing anywhere from two hundred to two hundred and fifty thousand dollars?

Mr. HENRY. I do not recall that there was anything said about that. Of course that was four years ago. What I gathered from it was that it was one of the regular stations he was establishing.

The CHAIRMAN. Did you gather the idea that it was a completed station, like the other stations?

Mr. HENRY. Why, yes; I think so—yes; an observation station of the same character that he had been establishing and had proposed to establish in the other places. By the way, he had a perfect right—he had latitude in locating these stations. While in a general way he indicated where he wanted to establish them, there was a certain latitude allowed him in determining where he should establish them.

The CHAIRMAN. According to your recollection, was anything said to the committee before he began the construction of the institution on Mount Weather?

Mr. HENRY. Why, no; I do not think it was necessary. He had a right to establish these stations, as I have said.

The CHAIRMAN. Like other stations?

Mr. HENRY. Like other stations; yes.

The CHAIRMAN. At that time, when the matter was referred to, was anything said to the committee about this being the foundation for a large plant?

Mr. HENRY. I do not think the matter was alluded to. I must say that I have not any further recollection in regard to any statement

(Witness: Henry.)

from Mr. Moore in connection with that station until a year ago, when he came before the committee and explained what he had done and proposed to do.

The CHAIRMAN. He then made quite an elaborate explanation?

Mr. HENRY. Yes; he then made quite an elaborate explanation.

The CHAIRMAN. That appears in your printed hearings?

Mr. HENRY. Yes.

The CHAIRMAN. So that whatever statement was made in 1902, if that is when it was——

Mr. HENRY. If that was the year, 1902.

The CHAIRMAN (continuing). Yes; whatever statement was made in 1902 and the statement in 1906 are all the statements that you remember of having been made about it at any time?

Mr. HENRY. I do not recall that the matter was ever brought up in any hearing that we had.

The CHAIRMAN. Or at any other time?

Mr. HENRY. Or at any other time at all. Now, I may be at fault in that matter; but my memory does not——

The CHAIRMAN. It is a fact that Professor Moore, in a report made in 1903 to the Secretary of Agriculture, devoted some little time to the elaboration of the Mount Weather project.

Mr. HENRY. Very likely—very likely. That would not necessarily come to the attention of the committee, however.

The CHAIRMAN. That you have no special recollection about. Then until 1906, so far as your recollection goes, the committee had no idea that an extensive plant, that might ultimately cost \$250,000 and, say, \$25,000 a year to maintain, was being constructed under any of those appropriations?

Mr. HENRY. Why, no. The explanation, quite a full explanation, that was made a year ago came to me somewhat as a surprise.

The CHAIRMAN. Do you want to make any further statement, Mr. Henry?

Mr. HENRY. No. A man's memory is at fault sometimes. I would not want to say that Mr. Moore had not alluded to that matter at the hearings.

The CHAIRMAN. You are only giving your best recollection?

Mr. HENRY. That is all.

The CHAIRMAN. We are greatly obliged to you.

(The committee thereupon adjourned until Saturday, February 2, 1907, at 2 o'clock p. m.)

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
Washington, D. C., Saturday, February 2, 1907.

The committee met at 2 o'clock p. m.

Present: Representatives Littlefield (chairman) and Samuel of the committee.

Present, also, Representative Lamb, of Virginia; A. Zappone, esq., Chief of the Division of Accounts and Disbursements, Agricultural

Department; Gifford Pinchot, esq., Chief Forester, Agricultural Department, and Overton W. Price, esq., Associate Forester, Agricultural Department.

STATEMENT OF HON. JOHN LAMB.

(The witness was duly sworn by the chairman.)

The CHAIRMAN. You are now a member of the Committee on Agriculture, are you, Mr. Lamb?

Mr. LAMB. Yes, sir; I am.

The CHAIRMAN. And how long have you been such?

Mr. LAMB. For ten years; since the Fifty-fifth Congress.

The CHAIRMAN. Some question has arisen before the committee with reference to the construction of the research institution, now located at Mount Weather, and the committee would like to have you state anything that you care to state in relation to that. First, when did you first learn that there was such an institution being constructed?

Mr. LAMB. I think it was year before last, when some question was asked the Chief of the Weather Bureau about these weather stations that were being built, and a question was asked by one member of the subcommittee, I think, touching the building in Yellowstone Park.

The CHAIRMAN. I will state right there that I think you have in your mind an examination that took place in December, 1902, because in order to properly refresh your recollection I will say that the printed report of the hearings before your committee shows that at that time, in December, 1902, this Yellowstone Park matter was referred to, and I presume that is the date you have in your mind.

Mr. LAMB. Yes; that is my recollection about that date. Of course I have not looked at the reports of the hearings at all, but I just give you my recollections now.

The CHAIRMAN. Now you may proceed.

Mr. LAMB. When that question was asked, the Chief of the Weather Bureau stated that they could not get out the bids so late in the season and could not work in that particular place, and he had used the fund to build an observatory at Mount Weather. That is my recollection about it.

The CHAIRMAN. Is that the first that you remember of hearing about the Mount Weather project?

Mr. LAMB. About the first, I think.

The CHAIRMAN. Do you remember whether at that time there was any discussion on the part of Mr. Moore or the committee as to whether or not the appropriation authorizing the creation of at least, say five stations, within a limit of \$50,000 did or did not authorize the beginning of that enterprise? Was there any discussion about that, do you remember?

Mr. LAMB. It seems to me that there was. That is my recollection, and there was some statement to the effect that these stations had been heretofore named in the bill.

The CHAIRMAN. That was true.

Mr. LAMB. I think that was.

The CHAIRMAN. Yes, that was true.

(Witness: Lamb.)

Mr. LAMB. And of the fact that the verbiage had been changed to "not less than five," or something of that sort—"not less than five," I think. After that I do not recollect any particular discussion about Mount Weather until—well, perhaps, this last session, when there was some reference to it in the hearings.

The CHAIRMAN. Yes, we have had before us a report of the hearings before your committee in 1906, in which Mr. Moore went over the matter elaborately.

Mr. LAMB. Yes, but the question of authority for doing it was not raised at either time. It seemed to go along, and that question was not raised until, I think, the papers commenced to talk about it. That is my recollection.

The CHAIRMAN. So that your memory would be that the question of authority under any particular appropriation was not discussed in the committee?

Mr. LAMB. No, it was not.

The CHAIRMAN. Or raised by Mr. Moore with the committee?

Mr. LAMB. I am satisfied it was not.

The CHAIRMAN. And you did not hear anything about that until you saw something about it in the newspapers?

Mr. LAMB. Yes.

The CHAIRMAN. Perhaps a couple of years ago?

Mr. LAMB. Yes; and then it was brought up, and the question of the general authority under the construction of the language was mentioned.

The CHAIRMAN. It was discussed?

Mr. LAMB. Yes; and there was a difference of opinion, as there can very well be, on that point.

The CHAIRMAN. Then, so far as you know, the committee had no conference with Professor Moore before he originated the Mount Weather project?

Mr. LAMB. I can not recall; I do not think they did. The first thing I heard about Mount Weather was when the question was asked about Yellowstone, and money was diverted from Yellowstone to Mount Weather.

The CHAIRMAN. Yes, that is your recollection?

Mr. LAMB. That is my recollection of it. If I had had time, I would have refreshed my memory by looking over the hearings, but I can not state positively offhand.

The CHAIRMAN. Perhaps I ought to say to you that the Chairman of the Agricultural Committee had the hearings here and stated that he had looked the hearings over and that all that the hearings disclose is this testimony in relation to the Yellowstone Park to which you have referred, and the extended statement made in 1906. So far as the hearings are concerned, that is all that they disclose.

Mr. LAMB. The fact of the matter is that Professor Moore made a very favorable impression every time he came before the committee. He is one of these fluent speakers, and the committee generally was disposed to grant whatever he asked, and I think he made, all the while, a very favorable report there. It struck me perhaps that he had not been as candid and as frank with us about that as he might have been, but I never supposed that he would do anything that was

wrong, and I do not think so now. It is simply his construction of the law.

The CHAIRMAN. Is there anything further you wish to say, Mr. Lamb?

Mr. LAMB. No, sir.

The CHAIRMAN. We are very greatly obliged to you.

ADDITIONAL STATEMENT OF PROF. WILLIS L. MOORE, CHIEF OF THE WEATHER BUREAU, DEPARTMENT OF AGRICULTURE.

Professor Moore, on having submitted to him the testimony of the Committee on Agriculture and being given an opportunity to be heard, filed the following statement:

On page 1095, Mr. Wadsworth in giving his testimony stated—

That was the first intimation (referring to testimony given by Mr. Moore in December, 1902) that we had of the starting of a station at Mount Weather and it will be seen from the language that Mr. Moore himself uses; it was substituted for the Yellowstone Park station, which had been specifically named in the appropriation bill, if my memory is correct.

Mr. Wadsworth is mistaken in his statement that there was a specific appropriation for the creation of a station at Yellowstone Park. It is important that we correct this error; otherwise it would appear that the Secretary of Agriculture and the Chief of the Weather Bureau had taken money that was specifically appropriated by Congress for the creation of a Weather Bureau building at Yellowstone Park and had expended it in the erection of a building at Mount Weather. The fact is that no specific appropriation was made for the erection of a building in the Yellowstone Park in the appropriation bill which went into operation July 1, 1902, and ended June 30, 1903. There were no specific appropriations; there was simply a general authority in the following language:

For the purchase of sites and the erection of not less than six buildings for use as Weather Bureau observatories * * *.

Under this authority, in which Congress left to the discretion of the Secretary of Agriculture where the buildings were to be located, the Secretary authorized me to erect buildings in certain places, among which was included the Yellowstone Park. But the early coming of winter in this place and the fact that spring does not open until June induced the Secretary to revoke his order for the erection of a building at Yellowstone Park, and in place of it to direct the erection of an observatory building at Mount Weather. The purchase of ground and the erection of an observatory building at Mount Weather was, therefore, begun strictly in accordance with the law and the usage that had prevailed in the creation of all other Weather Bureau observatories.

The idea of enlarging this Weather Bureau station into a research institution was not completely formulated by me until the spring or summer of 1903, although in my testimony given before the Agricultural Committee January 12, 1906, which appears on page 1097, I stated that in the original purchase of the ground I was able to get such an eligible site for such a small price that I thought it advisable in locating "a mere weather station" to secure this ground, because it might be useful at sometime "for establishing a research institution."

(Witness: Moore.)

I then wrote out elaborately my proposed plan for enlarging this station into a research observatory and printed the plan in my annual report, which is dated August 11, 1903 (see p. 1110); and, in order that every member of the committee in Congress might be familiar with what I proposed to do, I addressed the following letter to each member of the committee:

WASHINGTON, D. C., *December 18, 1903.*

HON. JAMES W. WADSWORTH, M. C.,

Chairman Agricultural Committee, House of Representatives.

MY DEAR SIR: I would be glad if you could find time to read my administrative report on the work of the Weather Bureau before I am called before the committee to explain our estimates for the support of the Bureau during the coming year. I inclose a copy of the report.

Very truly, yours,

WILLIS L. MOORE,

Chief U. S. Weather Bureau.

In this annual report, which was specially called to the attention of the chairman of the Agricultural Appropriation Committee on December 18, 1903, and to each of the other members of the committee, I specifically stated that an observatory building was in process of construction at Mount Weather, which was "well adapted for the making of observations of the ordinary kind," etc., and then proceeded to elaborate the various lines of research which it was hoped to install in the future.

In my report, dated October 4, 1904 (p. 1112), I speak of "seven buildings at Mount Weather," and state (p. 1112):

During the past year the main building of the Weather Bureau observatory has been completed, the power plant and the building from which balloon ascensions and kite flights are to be made have been erected, and the magnetic building started. * * *

The explanation that I made of my plans for Mount Weather does not appear in the published hearings because it was made before the subcommittee, whose hearings were not reported. My statement is borne out by the testimony of Representative Burleson, who recalls my appearance before the subcommittee, which met in the winter of 1904, and state (p. 1119):

I remember that in the course of the hearing that we gave him (Moore) before this subcommittee he spoke of the Mount Weather scheme. * * * After he had concluded what he had to say, I remember some expressions used by Mr. Wadsworth. I remember he spoke of Mr. Moore's enthusiasm, and said it was our duty to put on the brakes. He spoke of the latitude that Mr. Moore had in the expenditure of money carried in the bill.

But he did not curtail that latitude in the bill that he next prepared. Mr. Scott (p. 1121) locates the time of this hearing before the subcommittee as 1903-4. At this time, the fall of 1903 and the winter of 1904, the work had not yet been completed of constructing the ordinary weather station; therefore, nothing material could have been done in enlarging this station into a research institution. I state these facts to show that the Department was proceeding cautiously and with every act fully exposed to view.

Again, in January, 1906, in the printed hearing before the full Agricultural Committee of the House, I gave a résumé in which I described in detail the beginning of the Mount Weather research institution, and when I concluded, a bill was formulated and passed

(Witness: Moore.)

which not only renewed the old authority under which the Secretary of Agriculture and the Chief of the Weather Bureau had been working, but enlarged that authority so that, instead of being compelled to erect "not less than" a certain number of buildings for a specific sum of money, they were authorized to erect "not more than" a certain number, thus giving them latitude to spend as much on any one building as they might see fit. I draw attention to these facts to show the discretionary power that, by act of Congress, was vested in the Secretary. That I did not wish anyone to make a mistake as to what the Department was doing is shown by the full quotation (p. 1097) from my testimony given January 12, 1906, before the Committee on Agriculture, wherein I stated:

As a result of that (referring to his statements before the subcommittee three years before) the committee—I think you, Mr. Chairman—asked how much money I wanted to go ahead with that work the following year in building additional buildings. I said "we do not want any additional appropriation; we want an authority." I said that if you left the authority open, as it is now and as it was then, we could build a little each year.

To this statement of mine Mr. Lamb, who was of the committee three years before, responded:

I recollect that.

I followed this statement of Mr. Lamb's with:

Yes; and in that way we would gradually lead up to this institution. So that the committee was well informed before we began as to what our general intention was, and the committee seemed to be favorable to it. Since then we have built one or two buildings, usually one of these five buildings has gone at Mount Weather, etc.

After this testimony the appropriation bill for the year beginning 1906 and ending 1907 provided for the construction of Weather Bureau observatory buildings precisely as it did the year before and as it did when Mount Weather was begun, except, as previously stated, the authority of the Secretary was enlarged so that he might construct "not more than" a certain number of buildings, instead of being compelled to construct "not less than."

It might also be pointed out that the accounts of the Department for these expenditures have each year been passed upon favorably by the experts of the Treasury Department, and one of them has appeared before this committee and given it as his opinion that the authority of the Secretary was ample in the premises to place one or more buildings at Mount Weather as he in his discretion might determine. The appropriation for several years has read:

For the purchase of sites and the erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expense, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations, fifty thousand dollars.

As previously stated, the words "not less than" in the first line of the law quoted above have been changed in the appropriation for the current fiscal year to read "not to exceed."

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., February 13, 1907.

HON. JAMES K. TAYLOR,
Supervising Architect.

DEAR SIR: Calling your attention to the fact that since the fall of 1902 there have been constructed at Mount Weather five buildings and one kite shelter, at an aggregate cost of something like \$80,000, I would like to inquire whether or not the plans and specifications for these buildings, and the necessary supervision of construction, could have been prepared and the work carried on through your office without the incurring of any additional expense to the Government of a substantial character, and if not how much additional expense over that actually incurred during that period would have been necessary by the performance of said duties by your office, and in case of any increase of the personnel in your office by reason of their having additional work to do in the line of making plans and specifications, what then is the charge made by your office for such services.

Respectfully,

C. E. LITTLEFIELD,
*Chairman Committee on Expenditures
in the Department of Agriculture.*

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING ARCHITECT,
Washington, February 14, 1907.

HON. CHARLES E. LITTLEFIELD, M. C.
House of Representatives.

DEAR SIR: Replying to your letter of the 13th instant, I have the honor to advise you that this office could have prepared, since the fall of 1902, plans and specifications for five buildings and one kite shelter at Mount Weather, the cost of which you state was something like \$80,000, without incurring any additional expense to the Government beyond the actual cost of said plans and specifications, which would have been $3\frac{1}{2}$ per cent upon the actual cost of construction. The cost of supervising the work upon the ground would have been about \$2,000. You are aware of the fact that until July 1, 1906, all salaries of persons employed in this office were paid by an equitable pro rata charge against each construction appropriation, and this is largely true to-day, although the legislative bill approved June 22, 1906, appropriated specifically \$73,460 for the payment of certain salaries enumerated therein. During the years 1902, 1903, and 1904 this office was busily engaged in the construction of buildings authorized to be erected under the control and supervision of the Secretary of the Treasury, but there was a lull in this work in the years 1905 and 1906, during which period the office would have been glad to have undertaken the work in question, and these buildings could have been erected by this Department at any time during the period mentioned, if Congress had so directed.

The appropriation from which these buildings at Mount Weather have been constructed was not under the control of the Secretary of the Treasury, and therefore as an original proposition he was without authority to undertake their erection.

In the case you state, it would not have been necessary to increase the personnel of this office by reason of the construction of these buildings, but, as stated above, an equitable charge of $3\frac{1}{2}$ per cent of the actual cost of the buildings would have been taken from the appropriation, and to this would have been added the cost of superintendence, which would have been about \$2,000.

Respectfully,

J. K. TAYLOR, *Supervising Architect.*

On February 12, 1907, the chairman of the committee requested Mr. A. Zappone to produce and make a part of the hearings all papers and memoranda on file in the Department relative to work in wireless telegraphy, accompanied by a list of the Department's expenditures in connection with such experimentations and prefacing the same with a general statement regarding the matter. In compliance with this request the following statement was prepared from the records and the annexed exhibits were filed:

STATEMENT RELATIVE TO EXPERIMENTATION IN WIRELESS TELEGRAPHY BY THE
WEATHER BUREAU.

On December 20, 1899, the Chief of the Weather Bureau requested and secured authority from the Secretary of Agriculture to conduct experiments in wireless telegraphy. Work was begun on January 19, 1900, under the direct supervision of Prof. Reginald A. Fessenden, who was employed for that purpose at \$3,000 per annum. Professor Fessenden continued to direct the experimentations until he resigned on July 30, 1902, after which the work was continued by Mr. Alfred H. Thiessen until June 17, 1904, about which time the report of the wireless board appointed by the President was formulated, which report recommended that the wireless-telegraphy work be transferred to the Navy Department. The report was approved by the President on July 29, 1904.

The work was prosecuted during the fiscal years 1900 and 1901 mainly under authority in "General Expenses, Weather Bureau," under the provision therein "for maintenance and repair of seacoast telegraph lines," and during this period accounts for services and materials were passed by the Treasury Department without any disallowances. In this connection see decision of the Comptroller of the Treasury, dated January 9, 1901, exhibited below.

For the fiscal years 1902, 1903, and 1904 the appropriation for "General Expenses, Weather Bureau," contained specific provisions for experiments in wireless telegraphy.

The organic act creating the Weather Bureau specifically provides "that the Chief of the Weather Bureau, under the direction of the Secretary of Agriculture * * * shall have charge of the forecasting of weather * * *, the maintenance and operating of seacoast telegraph lines, and the collection and transmission of marine intelligence for the benefit of commerce and navigation * * *"

The wireless-telegraphy work was conducted altogether on or near the seacoasts and along Government telegraph lines in daily operation. The work was strictly in accordance with the provisions of the organic act which made it incumbent upon the Weather Bureau to maintain and operate seacoast telegraph lines, and collect and transmit marine intelligence for the benefit of commerce and navigation. The work had a direct bearing on the operation of the seacoast telegraph lines, and was maintained for the most part at terminal and intermediate stations of the Government telegraph lines, namely, Cape Hatteras, Manteo, and Cape Henry. Later the work was carried on between San Francisco, Point Reyes, and the Southeast Farallones, California, where the Government also maintains cable and telegraph lines. The wireless work supplemented the land and cable lines, and was used in lieu thereof during interruptions to the latter. It was the intent to have this wireless work supplant the telegraph lines and cables as fast as it was practicable to do so. The work was therefore prosecuted under the requirements of the organic act, and strictly under the provisions of the law making appropriations for the Weather Bureau during the fiscal years in which the work was carried on.

About one-half of the entire expenditures incurred under wireless telegraphy was in payment of salaries. The salaries of the employees detailed on this work were paid from the following appropriations: "Salaries, Weather Bureau," "Salaries, General Expenses, Weather Bureau," and from the lump fund for "Meteorological Observation Stations." All materials were purchased from the appropriation for "General Expenses, Weather Bureau."

Weather Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE,

OFFICE OF THE SECRETARY,

Washington, D. C., December 20, 1899.

Prof. WILLIS L. MOORE,

Chief U. S. Weather Bureau, Washington, D. C.

SIR: Impressed with the importance to the Weather Bureau of this Department of communicating between its stations by means of electro-magnetic wave signals instead of wire communication, you are hereby directed to prosecute experimentation and research with the view of devising a system of wireless telegraphy which will be applicable to the Weather Bureau.

You will make such expenditure from your current fund as is possible after economically readjusting your present expenses, and employ such experts as in your judgment may be necessary to take charge of or assist in the experiments.

I understand that the Marconi coherer is capable of detecting electro-ethereal vibrations at an extreme distance of about 40 miles. This range would not be sufficient to connect your Weather Bureau stations. Can you not secure devices that will either be more delicate than the Marconi coherer, or that will detect the magnetic wave by some delicate suspensory adjustment that will render the coherer unnecessary? I can appreciate the wonderful advantage to commerce that would result if you were able to open up communication between your coast and lake stations and the vessels of commerce that ply coastwise and on our great inland seas. It would be possible for vessel owners and others to communicate with the captains of vessels sailing from Boston, New York, Philadelphia, Baltimore, and other ports to places in the West Indies; to call in from the lakes and from the ocean on both sides of our continent all vessels located within several hundred miles of the coast whenever storms threatened.

The \$200,000 which the Weather Bureau spends in telegraphing and cabling each year is many times greater than what is expended by all other branches of the Government for telegraphic service. It therefore behooves you to make special effort to perfect a wireless system that will enable you to connect your vast system of observatories one with the other, and thereby make it possible for you to save much of the sum that is now spent in telegraphing and cabling.

But it is not the economical feature of the problem that impresses me so much as the vast benefit to trade and commerce that will result when you are able to flash your danger warnings over vast stretches of territory which could not otherwise be reached. I shall be glad to approve all legitimate expenditures, so far as the appropriation will permit, having for their object the vigorous prosecution of this work.

Very respectfully,

JAMES WILSON, *Secretary.*

UNITED STATES DEPARTMENT OF AGRICULTURE,

OFFICE OF THE SECRETARY.

Articles of agreement entered in this ninth day of January, nineteen hundred, between James Wilson, Secretary of Agriculture, for and on behalf of the Weather Bureau, U. S. Department of Agriculture, party of the first part, and Reginald A. Fessenden, professor, Western University of Pennsylvania, Allegheny, Pa.

This agreement witnesseth: That the said James Wilson, Secretary of Agriculture, for and on behalf of the United States of America and the said Reginald A. Fessenden, have mutually agreed, and by these presents do mutually covenant and agree to and with each other as follows:

That, in view of the said Fessenden being given employment in the Weather Bureau for one year at a salary of \$3,000 per annum; the employment (if necessary) in the Weather Bureau for one year, at a salary of \$1,200, of some person to be named by him; the purchase of such apparatus, supplies, etc., by the Government as may be considered necessary by the Chief of the Weather Bureau, said property to belong to the Weather Bureau; the detail for one year of two employees of the Weather Bureau to assist in conducting the experiments, with-

out expense to the said Fessenden, whatever inventions are made by the said Fessenden, or that have been made by him, applying to the wireless transmission of electric signals, shall be immediately patented by him at his expense and the right to use said inventions given to the Weather Bureau, Department of Agriculture, for transmission over land and sea of official messages, without charge, except for the apparatus at actual cost of manufacture, the Weather Bureau being further empowered to manufacture the apparatus for its own use if so desired, and said Fessenden hereby reserves all other commercial rights and privileges accruing from said invention.

In witness whereof, the undersigned have hereunto placed their hands and seals on the date first hereinbefore written.

(Signed) JAMES WILSON. [SEAL.]
Secretary of Agriculture.

(Signed) REGINALD A. FESSENDEN. [SEAL.]

Witnesses :

(Signed) JNO. A. BRASHEAR.

(Signed) JAMES W. WILSON.

(Executed in duplicate.)

Received for record March 8, 1902, and recorded in Liber K 64, page 491, of Transfers of Patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL.]

(Signed) F. I. ALLEN,
Commissioner of Patents.

Exd. *

E. H. G.

Whereas, I, Reginald A. Fessenden, formerly of the city of Allegheny, county of Allegheny, State of Pennsylvania, and now a resident of Manteo, in the county of Dare, State of North Carolina, have invented certain new and useful improvements in methods and apparatus for wireless telegraphy, for which I have filed applications for letters patent of the United States, ten in number, up to the date hereof; and whereas the United States Weather Bureau, Department of Agriculture, is desirous of acquiring the right and license to manufacture and use the inventions described in said applications for the purpose of transmission of official messages of said Weather Bureau over land and sea :

Now these presents witness, that for and in consideration of the sum of one dollar, to him in hand paid by the said United States Weather Bureau, the receipt of which is hereby acknowledged, and in consideration of moneys paid to the said Reginald A. Fessenden in accordance with an agreement dated January 9th 1900, between the said United States Weather Bureau and the said Reginald A. Fessenden, I, the said Reginald A. Fessenden, do hereby license and empower the said United States Weather Bureau, Department of Agriculture, to use the inventions described and claimed in said applications for letters patent for the purpose of transmission over land and sea of official messages of said United States Weather Bureau, but for no other purpose, without further charge or expense, except for the apparatus at actual cost of manufacture, the United States Weather Bureau being further empowered and licensed hereby to manufacture the necessary apparatus for this purpose for its own use, if so desired, as provided in and by the aforesaid agreement. And I, Reginald A. Fessenden, hereby further agree to execute and deliver immediately upon the issue of letters patent on said applications, or any of them, all instruments and writings necessary to grant and convey to the United States Weather Bureau, Department of Agriculture, the rights hereinbefore mentioned and to carry into effect the aforesaid agreement.

This is to be understood as in no way waiving the rights of the United States Weather Bureau, Department of Agriculture, to use in the manner and for the purposes stated other inventions pertaining to wireless telegraphy which may be secured to him by any letters patents on applications which may be made by him subsequent to the execution of this agreement.

Witness my hand this 6th day of March, 1902, at Manteo, North Carolina, in the presence of two attesting witnesses.

(Signed)

REGINALD A. FESSENDEN.

Witnesses:

(Signed) EBENEZER T. TURNER.
(Signed) WILLIAM T. LATHROP.

Received for record March 8, 1902, and recorded in Liber K 64, page 492, of Transfers of Patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL.]

(Signed)

F. I. ALLEN,
Commissioner of Patents.

Exd.

F. H. G.

Whereas, I, Reginald A. Fessenden, formerly of the city of Allegheny, county of Allegheny, State of Pennsylvania (and now a resident of the District of Columbia), have invented certain new and useful improvements in methods and apparatus for wireless telegraphy, for which letters patent of the United States, numbered as follows, have been issued up to the date hereof: 727331, of May 5, 1903; 12115, of May 26, 1903 (reissue); 731029, of June 16, 1903; 12168 and 12169, of November 10, 1903; 753863, of March 8, 1904; and whereas the United States Weather Bureau, Department of Agriculture, is desirous of acquiring the right and license to manufacture and use the inventions described in said letters patent for the purpose of transmission over land and sea of official messages of said United States Weather Bureau, Department of Agriculture:

Now these presents witnesseth, that for and in consideration of the sum of one dollar to him in hand paid by the said United States Weather Bureau, Department of Agriculture, the receipt of which is hereby acknowledged, and in consideration of moneys paid to the said Reginald A. Fessenden, in accordance with an agreement dated January 9, 1900, between the said United States Weather Bureau, Department of Agriculture, and the said Reginald A. Fessenden, I, the said Reginald A. Fessenden, do hereby license and empower the said United States Weather Bureau, Department of Agriculture, to use the inventions described and claimed in said letters patent for the purpose of transmission over land and sea of official messages of said United States Weather Bureau, Department of Agriculture, but for no other purpose, without further charge or expense, except for the apparatus at actual cost of manufacture, the United States Weather Bureau, Department of Agriculture, being further empowered and licensed hereby to manufacture the necessary apparatus for this purpose for its own use, if so desired, as provided in and by the aforesaid agreement.

This is to be understood as in no way waiving the rights of the United States Weather Bureau, Department of Agriculture, to use in the manner and for the purposes stated other inventions pertaining to wireless telegraphy which may be secured to Reginald A. Fessenden by any letters patents on applications which may be made by him subsequent to the execution of this agreement.

And I, Reginald A. Fessenden, hereby amend accordingly the license granted by me to the United States Weather Bureau, Department of Agriculture, on March 6, 1902, on my original applications for letters patent, recorded in Liber K, 64, pages 491 and 492,

Witness my hand this second day of June, 1904, in the city of Washington, District of Columbia, in the presence of two attesting witnesses.

(Signed)

REGINALD A. FESSENDEN.

Witnesses:

(Signed) A. E. HARWOOD.
(Signed) JESSIE E. BENT.

Received for record March 3, 1905, and recorded in Liber J 71, page 238, of Transfers of Patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL.]

(Signed)

F. I. ALLEN,
Commissioner of Patents.

TREASURY DEPARTMENT,
OFFICE OF COMPTROLLER OF THE TREASURY,
January 9, 1901.

In the revision, upon my own motion, of the account of Frank L. Evans, disbursing clerk of the Department of Agriculture, under the appropriation "General expenses, Weather Bureau, 1900," covering the period from January 1, 1900, to March 31, 1900, settled by the Auditor for the State and other departments per certificate No. 16218, dated June 27, 1900, exception was taken to the following item in said account, viz:

"Voucher No. 1181. John A. Brashears, \$108.

"For electric make-and-break machine for wireless telegraphy to be used in making experiments in wireless telegraphy at Allegheny, Pa., in connection with telephoning and telegraphing report."

This item was excepted to for the reason that the machine appeared to have been bought for purely experimental purposes in connection with telegraphing and telephoning reports and did not seem to be provided for by the appropriation. In his explanations to this item Mr. Evans states, among other things, that—

"The electric make-and-break machine bought of John A. Brashears will, when perfected, be used in connection with the maintenance and operation of seacoast telegraph lines and for the transmission of marine intelligence for the benefit of commerce and navigation in sending messages and signals to the Weather Bureau stations along the seacoast and (if present expectations shall be realized) between these stations and passing vessels.

"This instrument was originally purchased for temporary use in making experiments at Allegheny, Pa., but it has since been transferred to a seacoast station where further experiments are now being conducted in sending messages to near-by points."

The appropriation for general expenses, Weather Bureau, 1900, provides:

"General expenses of the Weather Bureau under the direction of the Secretary of Agriculture, for the benefit of agriculture, commerce, navigation, and other interests as provided by law, namely: Salaries * * * three hundred and eighty-two thousand one hundred and ninety-five dollars. All other expenses, itemized as follows: * * * for instruments and shelters therefor; for telegraphing and telephoning reports and messages, the rates to be fixed by the Secretary of Agriculture by agreements with the companies performing the services; for rents and other incidental expenses of offices maintained at stations of observation, for maintenance and repair of seacoast telegraph lines; for river observations and reports; for storm and other signals; * * * for supplies for climate and crop service, and for investigation on climatology, including assistance and all necessary expenses, three hundred and eighty-five thousand nine hundred and sixty-seven dollars."

Under the terms of this appropriation the Secretary of Agriculture is not authorized to incur an expense for an instrument connected with telegraphy, whether for experimental or other purposes, for use on other telegraph lines than the seacoast lines being operated and maintained by the Government.

Allegheny, Pa., is an inland town and it can hardly be said that a seacoast line of telegraph could be maintained and operated at such point. Congress has provided for the maintenance and operation of seacoast telegraph lines and the Government is confined in the expenditure for maintenance of telegraph lines or systems to such seacoast lines. The Secretary of Agriculture was not, therefore, authorized to purchase this machine for the purpose of use or experiment at Allegheny, Pa., but as it has since been transferred to a seacoast telegraph station and is now in use as a part of the outfit of the same, the amount of said purchase will not be disallowed in this revision upon my own motion.

Purchases of instruments for telegraphing are unauthorized under this appropriation unless they are to be used as a part of the outfit in the operation, maintenance and repair of the seacoast telegraph lines that the Government is authorized to operate and maintain.

R. J. TRACEWELL, *Comptroller*.

Expenditures for wireless telegraphy work from the appropriation for "General Expenses, Weather Bureau." during the fiscal years 1900-1904, inclusive.

	1900.	1901.	1902.	1903.	1904.
Salaries.....	\$2,245.00	\$5,181.72	\$6,801.20	\$3,069.41	\$1,745.00
Instruments and apparatus.....	367.00	2,240.94	2,109.51	94.98	1,749.00
Material, labor, boat hire, etc.....	1,534.66	1,785.73	3,390.58	1,276.89	1,515.77
Rent of ground and quarters.....		90.00	225.00	176.00	-----
Flagstaffs and accessories.....		1,986.75	50.00	33.00	765.00
Total.....	4,146.66	11,235.14	12,576.29	4,650.28	5,774.77

Grand total, \$38,383.14.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES, UNITED STATES,
Washington, D. C., February 13, 1907.

HON. R. J. TRACEWELL,
Comptroller of the Treasury.

DEAR SIR: In investigating the matters of expenditures of the Department of Agriculture in the Weather Bureau I have been examining their expenditures incurred in wireless telegraphy work, and I find that they expended during the—

Fiscal year 1900.....	\$4,146.66
Fiscal year 1901.....	11,235.14
Fiscal year 1902.....	12,576.29
Fiscal year 1903.....	4,650.28
Fiscal year 1904.....	5,774.77

Making an aggregate of..... 38,383.14

It appears that in the appropriation bills beginning with the year 1902 provision was made for experiments in wireless telegraphy. I have submitted to you the appropriation bills prior to that time for your examination. Among the papers transmitted to me I have received a decision made by you upon an item of \$108 for an electric make-and-break machine, which would have been disallowed by you on the assumption that it was used for experimenting in wireless telegraphy, but was allowed upon the statement that it was used in connection with the seacoast telegraph line.

During the years 1900 and 1901 \$15,381.80 was expended in experimentation for wireless telegraphy.

I would be glad to have you state:

(1) Why it was that these sums of \$15,381.80 that were expended for experimental work in wireless telegraphy were not disallowed, as they apparently should have been in accordance with your opinion in connection with the \$108 item.

(2) Whether or not in your opinion the contract that appears to have been made by the Secretary of Agriculture with Mr. Reginald A. Fessenden was authorized by law.

(3) Whether the sums which appear to have been disbursed in the fiscal years 1900 and 1901 for wireless-telegraphy work under the contract made by the Department of Agriculture with Mr. Fessenden and the letter of the Secretary to the Chief of the Weather Bureau were authorized by law and should have been paid.

In the prosecution of the investigations of this committee we have had our attention called to and examined in detail the construction of what is called by Professor Moore the "Research Institution" at Mount Weather. The construction of this institution was begun in the fall of 1902 and has been continued from time to time until the present date. The testimony of Professor Moore shows that the institution which has thus been inaugurated contemplates ultimately an expenditure of \$250,000 and of \$25,000 a year for maintenance.

I wish to call your attention to the various appropriation bills for weather stations for the years 1903, 1904, 1905, and 1906, and ask you:

(1) Whether or not under the terms of those appropriations the construction and development of such an institution were authorized.

(2) Please advise me whether or not, in your opinion, the appropriation reading as follows—

“For the purchase of sites and erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses; plans and specifications to be prepared, and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm warning towers, to properly equip these stations, \$50,000,” does not contemplate at least six completed stations, including their instruments, furniture, supplies, flagstuffs, and storm-warning towers.

(3) Please state whether or not under that appropriation the Department of Agriculture would be authorized in partially constructing any research institution; or, in other words, whether it would be authorized in beginning the development of a plant which was ultimately to cost \$250,000 and has already cost \$140,000, and which in the process of its development has been added to from time to time since the fall of 1902 up to date, with the exception of 1907, under appropriations reading like that above quoted. It should be stated that something like \$60,000 of the \$140,000 was expended under the appropriation entitled “General Expenses, Weather Bureau.”

Please state whether or not, in your opinion, the Department of Agriculture would be authorized to use all of said sum of \$50,000 in the purchase of sites and the construction of buildings, using nothing for the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip the stations, but using sums for that purpose (the last-noted purpose) from other appropriations, and thus leave a larger sum on hand under the appropriation inquired about for purchase of sites and construction of buildings.

Inasmuch as the testimony of Mr. Jacobs before our committee might, unexplained, leave the inference that you had had a conference with Mr. Timme and advised the construction adopted by Mr. Jacobs, will you be kind enough to state what conference, if any, you had with Mr. Timme, and what, if anything, you said to him in relation to said construction?

Yours, very truly,

C. E. LITTLEFIELD.

TREASURY DEPARTMENT,
Washington, February 15, 1907.

HON. CHARLES E. LITTLEFIELD,
*Chairman Committee on Expenditures
Department of Agriculture,
House of Representatives.*

MY DEAR SIR: I am in receipt of your letter dated the 13th instant, in which you request my opinion as to the legality of certain expenditures made by the Department of Agriculture for experimentation in wireless telegraphy during the fiscal years 1900 and 1901, and also as to the expenditures during the fiscal years 1902, 1903, 1904, 1905, and 1906 on what is called the Research Institution at Mount Weather.

You say as to the first proposition:

“In investigating the matters of expenditures of the Department of Agriculture in the Weather Bureau, I have been examining their expenditures incurred in wireless telegraphy work and I find that they expended during the—

Fiscal year 1900	\$4, 146. 66
Fiscal year 1901.....	11, 235. 14
Fiscal year 1902.....	12, 576. 29
Fiscal year 1903.....	4, 650. 28
Fiscal year 1904.....	5, 744. 77

making an aggregate of..... 38, 353. 14

It appears that in the appropriation bills beginning with the year 1902 provision was made for experiments in wireless telegraphy. I have submitted to you the appropriation bills prior to that time for your examination. Among

the papers transmitted to me I have received a decision made by you upon an item of \$108 for an electric make-and-break machine, which would have been disallowed by you on the assumption that it was used for experimenting in wireless telegraphy, but was allowed upon the statement that it was used in connection with the sea coast telegraph line.

"During the years 1900 and 1901 \$15,381.80 was expended in experimentation in wireless telegraphy.

"I would be glad to have you state:

"(1) Why it was that these sums of \$15,381.80 that were expended for experimental work in wireless telegraphy were not disallowed, as they apparently should have been in accordance with your opinion in connection with the \$108 item?

"(2) Whether or not, in your opinion, the contract that appears to have been made by the Secretary of Agriculture with Mr. Reginald A. Fessenden was authorized by law?

"(3) Whether the sums which appear to have been disbursed in the fiscal years 1900 and 1901 for wireless telegraphy work under the contract made by the Department of Agriculture with Mr. Fessenden and the letter of the Secretary to the Chief of the Weather Bureau, were authorized by law and should have been paid?"

The appropriations under which the expenditure of \$15,381.80 set out in your letter could have only been made are those for the years 1900 and 1901, and which read:

"GENERAL EXPENSES, WEATHER BUREAU: General expenses of the Weather Bureau, under the direction of the Secretary of Agriculture, for the benefit of agriculture, commerce, navigation, and other interests, as provided by law, namely:

* * * * *

"All other expenses, itemized as follows: Maps, bulletins, stationery, and scientific and other publications for stations; and the maintenance of a printing office in the District of Columbia for printing the necessary circulars, weather maps, bulletins, and the monthly weather reviews (including the hire of printers, lithographers, and other necessary working force); for traveling expenses, for freight and express charges; for instruments and shelters therefor; for telegraphing or telephoning reports and messages, the rates to be fixed by the Secretary of Agriculture by agreement with the companies performing the services; for rents and other incidental expenses of offices maintained as stations of observation; for maintenance and repair of sea coast telegraph lines; for river observations and reports; for storm and other signals; for cotton-region observations and reports; for corn and wheat observations and reports; for aerial observations and reports; for special observations and pay of observers of West Indian, Mexican, and Central American stations during the hurricane season; for supplies for climate and crop services, and for investigations on climatology, including assistance and all necessary expenses, three hundred and eighty-five thousand nine hundred and sixty-seven dollars." (For fiscal year 1900.)

"GENERAL EXPENSES, WEATHER BUREAU.—General expenses of the Weather Bureau, under the direction of the Secretary of Agriculture, for the benefit of agriculture, commerce, navigation, and other interests, as provided by law, namely:

* * * * *

"All other expenses, itemized as follows: Maps, bulletins, stationery, and scientific and other publications for stations; and the maintenance of a printing office in the District of Columbia for printing the necessary circulars, weather maps, bulletins, and monthly weather reviews (including the hire of printers, lithographers, and other necessary working force); for traveling expenses; for freight and express charges; for instruments and shelters therefor; for telegraphing or telephoning reports and messages, the rates to be fixed by the Secretary of Agriculture, by agreement with the companies performing the services; for rents and other incidental expenses of offices maintained as stations of observation; for maintenance and repair of sea coast telegraph lines; for river observations and reports; for storm and other signals; for cotton-region observations and reports; for corn and wheat observations and reports; for aerial observations and reports; for supplies for climate and crop services, and for investigations on climatology, including assistance and all necessary ex-

penses, four hundred and thirty-nine thousand five hundred dollars." (For fiscal year 1901.)

In answer to your first question I have the honor to say that on January 9, 1901, I rendered a decision which had its foundation in the revision of the accounts of Frank L. Evans, disbursing clerk of the Department of Agriculture, wherein I held that the appropriation for "General Expenses, Weather Bureau," for the fiscal year 1900 could not be used to pay the expenses incurred in experimentation in wireless telegraphy. This decision was, no doubt, under the rules of my office, at once forwarded to the office of the Auditor for the State and other Departments, who settles the accounts arising in the Agricultural Department. Why the Auditor passed accounts after the date of said decision containing items of expense for experimental work in wireless telegraphy until such expenses were appropriated for in the appropriation act for the fiscal year 1902, I am unable to state. It was his duty to apply the decisions of the Comptroller to the settlement of such accounts.

The contract referred to in your second question with Reginald A. Fessenden, while most general in its terms, seems to contemplate an employment of Mr. Fessenden and an agreement to pay him at the rate of \$3,000 per year for his services in experimental work in wireless telegraphy for the Weather Bureau, and was, in my judgment, not authorized by law, for the reason that the Secretary of Agriculture at the date of such contract was not authorized to incur expenses for experimentation in wireless telegraphy.

It follows from my answers to questions (1) and (2) that I am constrained to answer the third question also in the negative.

You say relative to the second branch of your questions:

"In the prosecution of the investigations of this committee we have had our attention called to and examined in detail the construction of what is called by Professor Moore the 'Research Institution' at Mount Weather. The construction of this institution was begun in the fall of 1902, and has been continued from time to time until the present date. The testimony of Professor Moore shows that the institution which has thus been inaugurated contemplates ultimately an expenditure of \$250,000 and of \$25,000 a year for maintenance."

And you then propound the following questions:

"I wish to call your attention to the various appropriation bills for weather stations for the years 1903, 1904, 1905, and 1906, and ask you:

"(1) Whether or not, under the terms of those appropriations, the construction and development of such an institution were authorized?

"(2) Please advise me whether or not, in your opinion, the appropriation reading as follows: 'For the purchase of sites and erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations, \$50,000,' does or not contemplate at least six completed stations, including their instruments, furniture, supplies, flagstuffs, and storm-warning towers.

"(3) Please state whether or not, under that appropriation, the Department of Agriculture would be authorized in partially constructing any research institution. Or, in other words, whether it would be authorized in beginning the development of a plant which was ultimately to cost \$250,000 and has already cost \$140,000, and which in the process of its development has been added to from time to time since the fall of 1902 up to date, with the exception of 1907, under appropriations reading like that above quoted. It should be stated that something like \$60,000 of the \$140,000 was expended under the appropriation entitled 'General expenses, Weather Bureau.'

"Please state whether or not, in your opinion, the Department of Agriculture would be authorized to use all of said sum of \$50,000 in the purchase of sites and the construction of buildings, using nothing for the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip the stations, but using sums for that purpose (the last-noted purpose) from other appropriations and thus leave a larger sum on hand under the appropriation inquired about, for purchase of sites and construction of buildings.

"Inasmuch as the testimony of Mr. Jacobs before our committee might, unexplained, leave the inference that you had had a conference with Mr. Timme, and advised the construction adopted by Mr. Jacobs, will you be kind enough

to state what conference, if any, you had with Mr. Timme, and what, if anything, you said to him in relation to said construction."

These questions involve a construction of the acts appropriating for sites and the erection of Weather Bureau observatories, or stations, for the fiscal years 1903, 1904, 1905, and 1906. These appropriations read:

"For the purchase of sites and erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses; plans and specifications to be prepared, and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations, fifty thousand dollars." (For fiscal year 1903.)

"For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared, and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations: *Provided*, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, fifty thousand dollars." (For fiscal year 1904.)

"For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared, and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations: *Provided*, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, forty-eight thousand dollars." (For fiscal year 1905.)

"For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations: *Provided*, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, outside of the District of Columbia: *And provided further*, That a portion of the Federal building site at Springfield, Illinois, fronting ninety feet on Monroe street and extending back at that width one hundred and sixty feet along Seventh street to paved alley, may be used as a site for one of the five buildings proposed above, and is hereby transferred to the Department of Agriculture for that purpose, fifty-three thousand dollars." (For fiscal year 1906.)

As a preliminary to answering your several questions last propounded, it does not appear difficult to arrive at the intent of Congress in this series of appropriations providing that a given number of Weather Bureau stations be erected, including furnishing of the same with instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip them, out of each of the appropriations above set out. For instance, take the appropriation set out in your letter, for the fiscal year 1903—the one used to erect the first building at Mount Weather. It carries an appropriation of \$50,000 and directs, in plain and unmistakable terms, that these buildings shall be erected out of this \$50,000 for use as Weather Bureau observatories, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers—which when equipped, furnished, and manned, constitute weather stations. The direction of Congress is to erect, out of the appropriation in question, six buildings, equipped, furnished, and provided with proper instruments, thus forming a weather station. I do not deem it a question of great importance whether one or more buildings

are erected at weather stations provided for by these appropriations. Whether one or more buildings are erected, the observatory must be complete for the purpose for which the appropriation is made—namely, a weather station—and have the proper instruments, storm-warning towers, and furniture appropriate and necessary for the character of weather stations contemplated by these appropriations. The character of weather station contemplated is such as to cost, on the average, one-sixth of \$50,000.

I understand that buildings have been erected each year at Mount Weather, commencing with the appropriation for 1903; that the sites and buildings so far erected, with furniture and instruments, have cost \$140,000; and when the research institution or the weather station at Mount Weather is completed under the present plans, it will cost \$250,000.

In answer to your first question, I have the honor to say that under existing law there has been no authority for the construction or development of the station at Mount Weather as constructed or proposed to be developed.

I answer your second question in the affirmative.

I answer your third question in the negative.

From what has been above said, it is plain that where \$50,000 has been appropriated to erect a given number of buildings, and to equip them as weather stations by furnishing them and by providing them with proper instruments, etc., it is not a legal use of this appropriation to expend it all upon the buildings and draw upon other appropriations to furnish the buildings and provide the instruments necessary therefor.

In conclusion, permit me to say that I have at no time, to the best of my recollection, had any conversation with Mr. Timme, formerly Auditor for the State and other Departments, relative to the proper use of the appropriations above set out. I am confirmed in this recollection by the fact that until I examined your memoranda as to how these appropriations had been used, I had no knowledge whatever as to their use and no knowledge as to the extent of the plant at Mount Weather or when erected.

Respectfully,

(Signed)

R. J. TRACEWELL, *Comptroller.*

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE.
HOUSE OF REPRESENTATIVES, UNITED STATES,
Washington, D. C., February 11, 1907.

HON. FREDERICK I. ALLEN,
Commissioner of Patents, Washington, D. C.

MY DEAR SIR: In connection with the examination of the accounts of the Department of Agriculture I wish to ascertain how many patents, if any. Reginald A. Fessenden has taken out during the last ten years relative to the subject of wireless telegraphy, and I would like to have a memorandum of each patent, giving the date of the application and the substance of the invention patented, with a statement as to whether or not the records of the office show that any or all of the patents issued Mr. Fessenden were transferred to any other party, and especially to the Department of Agriculture or anyone connected therewith for its use.

I would be glad to have this information as early as may be convenient.

Yours, very respectfully,

C. E. LITTLEFIELD,

Chairman Committee on Expenditures in the Department of Agriculture.

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE,
Washington, D. C., February 15, 1907.

HON. CHARLES E. LITTLEFIELD,
House of Representatives, Washington, D. C.

DEAR SIR: Complying with your oral request of the 14th instant, I have the honor to transmit herewith the report of Mr. Willis Magruder, chief of the assignment division, relative to the status of certain applications of Reginald

A. Fessenden, inventor. These applications all relate to wireless telegraphy. Accompanying Mr. Magruder's report will be found an abstract of title under the name of Reginald A. Fessenden, including all patents and applications filed by him as inventor from January 1, 1900, to and including the 8th instant. These inventions cover not only wireless telegraphy, but any other inventions that may have been made by him, as designated therein. It will be seen from this abstract that the different inventions are grouped according to title.

It will also be seen from Mr. Magruder's report that there were 10 of Mr. Fessenden's applications pending on March 6, 1902, that being the time that the license between Mr. Fessenden and the United States Weather Bureau, Department of Agriculture, was executed, and they are the applications referred to in said license, although they were not therein specifically identified. It will be observed that out of these 10 applications pending at that time, above referred to, there have resulted 12 patents, 2 reissues, and certain divisional applications, one of which resulted in a patent and the other became abandoned from failure to prosecute. In other words, the Weather Bureau under its contract with Mr. Fessenden is entitled to use the inventions embraced in 12 patents. This results from the fact that one of the patents was surrendered under the reissue law and was reissued as two patents in lieu thereof, and one additional patent was carved out of one of these applications as a separate application, which is frequently the case to comply with the classification of this office.

Very respectfully,

E. B. MOORE,
Acting Commissioner.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 15, 1907.

Hon. E. B. MOORE,

Acting Commissioner of Patents.

SIR: I have the honor to transmit herewith a certified abstract of title under the name of Reginald A. Fessenden, which abstract shows all assignments, agreements, licenses, powers of attorney, and other instruments in writing found of record under said name as inventor, from January 1, 1900, to and including the 8th instant.

The following is a list of the 10 applications of Reginald A. Fessenden that were pending on March 6, 1902, at the time that the license between Fessenden and United States Weather Bureau, Department of Agriculture, was executed, and they are the applications referred to in said license, although they were not therein specifically identified.

1. Application serial No. 740429, filed December 15, 1899, for wireless telegraphy, which has resulted in patent No. 706735, granted August 12, 1902.

2. Application serial No. 62301, filed May 29, 1901, for wireless telegraphy, which has resulted in patent No. 706737, granted August 12, 1902. This patent was reissued in two cases, reissue No. 12168 and 12169, both for wireless telegraphy, August 12, 1902; and a divisional application was filed, being carved out of this original application, which divisional application is serial No. 168795, filed August 8, 1903, for signaling by electro-magnetic waves, and has become abandoned, the last action thereon having been August 16, 1903.

3. Application serial No. 62302, filed May 29, 1901, for wireless telegraphy, which resulted in patent No. 706738, August 12, 1902. A division of this application, serial No. 168796, was filed August 8, 1903, for signaling by electro-magnetic waves, and resulted in patent No. 742779, October 27, 1903.

4. Application serial No. 16971, filed May 17, 1900, for apparatus for wireless telegraphy, being a division of the application 740429, of December 15, 1899, and was renewed under serial No. 84097, under date of November 29, 1901, and has resulted in patent No. 706736, August 12, 1902.

5. Application serial No. 76836, for wireless signaling, filed September 28, 1901, which has resulted in patent No. 706740, August 12, 1902.

6. Application serial No. 76837, filed September 28, 1901, for wireless signaling, which has resulted in patent No. 753863, March 8, 1904.

7. Application serial No. 18878, filed June 2, 1900, for transmission and receipt of signals, which has resulted in patent No. 727325, May 5, 1903.

8. Application serial No. 53441, filed March 29, 1901, for apparatus for transmitting and receiving signals (being a division of application serial No. 18878, filed June 2, 1900), has resulted in patent No. 777014, December 6, 1904.

9. Application serial No. 62303, filed May 29, 1901, conductor for wireless telegraphy, which resulted in patent No. 706739, August 12, 1902.

10. Application serial No. 81215, filed November 5, 1901, for apparatus for wireless signaling, which has resulted in patent No. 706741, August 12, 1902.

It is observed that out of these 10 applications pending at that time, there have resulted 13 patents (2 reissues and 1 divisional application), and there remains 1 divisional application not yet patented, which stands abandoned.

Very respectfully,

W. B. MAGRUDER,
Chief Assignment Division.

DEPARTMENT OF THE INTERIOR.

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the digest of this Office of all assignments, agreements, licenses, powers of attorney, and other instruments of writing, found of record up to and including February 8, 1907, that may affect letters patent granted to and applications filed by Reginald A. Fessenden (as inventor) from January 1, 1900.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the city of Washington this 15th day of February, in the year of our Lord 1907 and of the independence of the United States of America the one hundred and thirty-first.

[SEAL.]

E. B. MOORE,
Acting Commissioner of Patents.

REGINALD A. FESSENDEN, AS INVENTOR, FROM JANUARY 1, 1900.

** Instrument dated June 8, 1901, recorded June 10, 1901, Liber O 63, p. 60.*

PARTIES.

Grant McCargo to Reginald A. Fessenden, Allegheny, Pa.

INVENTION.

Pencil for incandescent lamp: December 12, 1899, No. 638837; December 12, 1899, No. 638838.

Incandescent lamp: December 12, 1899, No. 638839; December 12, 1899, No. 638840; December 12, 1899, No. 639161; May 29, 1900, No. 650531.

Camera: Filed August 25, 1899, serial No. 728424.

Insulating material: Filed August 25, 1899, serial No. 728425.

Means for locating explosion of smokeless powder: Filed July 20, 1899, serial No. 724577

and other inventions.

Owning one undivided half interest in said specified letters patent, applications, and inventions, hereby assigns said interest with all his interest in all inventions made or to be made by said Fessenden. Letters patent on said applications to issue to said assignee as sole owner.

\$1 and other considerations.

Instrument dated January 9, 1900, recorded March 8, 1902, Liber K 64, p. 491.

PARTIES.

Agreement between Secretary of Agriculture, on behalf of the Weather Bureau, U. S. Department of Agriculture, and Reginald A. Fessenden, Allegheny, Pa.

INVENTION.

Wireless transmission of electric signals. All inventions.

In view of Fessenden being given employment in said Weather Bureau for one year, on terms recited, and in view of other matters herein recited, "what-ever inventions" are made or have been made by Fessenden applying to wireless transmission of electric signals shall be immediately patented by him, and the right given to said Bureau to use said inventions for transmission over land and sea of official messages, without charge except for the apparatus at cost of manufacture; said Bureau being further empowered to manufacture the apparatus for its own use if so desired; and Fessenden reserves all other commercial rights and privileges accruing from "said invention."

Instrument dated Mar. 6, 1902. Recorded Mar. 8, 1902. Liber K 64, p. 492.

PARTIES.

Reginald A. Fessenden to United States Weather Bureau, Department of Agriculture.

INVENTION.

Methods and apparatus for wireless telegraphy and other inventions pertaining to wireless telegraphy. Application filed (10 times):

In consideration of \$1 and of moneys paid to said Fessenden in accordance with an agreement dated January 9, 1900, between the parties hereto, he hereby licenses said Bureau to use the inventions described in said applications for the purpose of transmission over land and sea of official messages of said Bureau, but for no other purpose, without further charge, except for the apparatus at cost of manufacture, said Bureau being further licensed hereby to manufacture the necessary apparatus for this purpose for its own use, if so desired, as provided in agreement. Fessenden agrees upon issue of letters patent on said applications, or any of them, to execute and deliver all instruments necessary to convey to said Bureau the rights hereinbefore mentioned, and to carry into effect the aforesaid agreement. This in no way waives the rights of said Bureau to use in the manner and for the purposes stated other inventions pertaining to wireless telegraphy which may be secured to him by letters patent on applications which may be made by him subsequent to the execution hereof.

Instrument dated May 26, 1902; recorded August 14, 1902. Liber P 65, p. 351.

PARTIES.

Reginald A. Fessenden to Darwin S. Wolcott, Sewickley, Pa.

INVENTION.

Transmission and receipt of signals: Filed June 2, 1900, serial No. 18878. *Patent 727325, May 5, 1903.*

Apparatus for transmitting and receiving signals: Filed March (May) 29, 1901, serial No. 53441. *Patent 777014, December 6, 1904.*

Conductor for wireless telegraphy: Filed March (May) 29, 1901, serial No. 62303. *Patent 706739, August 12, 1902.*

Apparatus for wireless signaling: Filed November 5, 1901, serial No. 81215. *Patent 706741, August 12, 1902.*
and improvements.

Wireless telegraphy: Filed December 15, 1899, serial No. 740429. *Patent 706735, August 12, 1902.* Filed March (May) 29, 1901, serial No. 62301. *Patent 706737, August 12, 1902.* *Reissues No. 12168 and 12169, November 10, 1903.* *Divisional application filed August 8, 1903, No. 168795.* Filed March (May) 29, 1901, serial No. 62302. *Divisional application filed August 8, 1903, No. 168796.* *Patent 742779, October 27, 1903.*

Apparatus for wireless telegraphy: *Being division of serial No. 740429, December 15, 1899.* Filed May 17, 1900, serial No. 16971. Renewed, November 29, 1901, serial No. 84097. *Patent 706736, August 12, 1902.*

Wireless signaling: Filed September 28, 1901, serial No. 76836. *Patent No. 706740, August 12, 1902.* Filed September 28, 1901, serial No. 76837. *Patent No. 753863, March 8, 1904.*

This deed states that Fessenden has made said applications and has made additional improvements pertaining to wireless signalling, for which he is about to apply for letters patent. He hereby assigns one undivided third of the entire right, title, and interest in the inventions which he has made or may hereafter make in wireless signalling, including those described in the applications herein identified by dates and numbers, and in the letters patent therefor, and covenants that upon execution of any applications for patents for further improvements he has made or may make on wireless telegraphy, to execute papers for carrying out terms hereof. Wolcott agrees not to transfer any of the rights hereby vested in him, except with Fessenden's written consent. Fessenden agrees that in all negotiations for sale of said inventions and letters patent therefor, the rights hereby granted Wolcott will be included, and in case of sale by Fessenden, Wolcott hereby agrees to transfer the rights hereby acquired to Fessenden or as he may designate, on terms herein named.

See record relative to foreign patents and for details.

Instrument dated July 29, 1902; recorded August 26, 1902, Liber M 65, p. 428.

PARTIES.

Reginald A. Fessenden to Darwin S. Wolcott, Sewickley, Pa.

INVENTION.

Current actuated wave responsive device: Filed July 1, 1902, serial No. 113968. *August 12, 1902, No. 706744.*

Apparatus for signaling by electro-magnetic waves: Filed July 22, 1902, serial No. 116483. *August 12, 1902, No. 706747.*

Wireless signaling: Filed June 6, 1902, serial No. 110460. *August 12, 1902, No. 706742.* Filed June 26, 1902, Serial No. 113244. *August 12, 1902, No. 706743.*

Signaling by electro-magnetic waves: Filed July 1, 1902, serial No. 113969. *August 12, 1902, No. 706745.* Filed July 1, 1902, serial No. 113970. *August 12, 1902, No. 706746.*

This deed states that by agreement dated May 26, 1902, said Fessenden assigned to said Wolcott certain interests in inventions in wireless signaling, and agreed to assign improvements thereon which he might make during three years "from date." In compliance with terms of said agreement said Fessenden hereby assigns, subject to terms and conditions of said agreement, one undivided third of the entire right, title, and interest in said inventions herein described by dates and numbers and letters patent therefor.

Consideration, \$1.

Instrument dated November 5, 1903; recorded November 16, 1903. Liber E 68, p. 459.

PARTIES.

Reginald A. Fessenden to Darwin S. Wolcott, Sewickley, Pa.

INVENTION.

Wireless telegraphy: Filed July 27, 1903, serial No. 167242; filed August 8, 1903, serial No. 168795; filed August 8, 1903, serial No. 168797; filed August 8, 1903, serial No. 168798. *August 12, 1902, serial No. 706737.* Application filed for reissue October 20, 1903, serial No. 177831 (9). *Retissued November 10, 1903, No. 12168. Division A.* Application filed for reissue October 20, 1903, serial No. 177830. *Retissued November 10, 1903, No. 12169. Division B.*

Method of utilizing the energy of waves: June 16, 1903, No. 731029.

Signaling by wireless telegraphy: Filed June 6, 1902, serial No. 110461.

Receiver for signaling: Filed August 27, 1902, serial No. 121171; filed September 27, 1902, serial No. 125032.

Magnetic receiver: Filed September 27, 1902, serial No. 125030.

Selective signaling: Filed December 29, 1902, serial No. 136968. *Patent 752894, February 23, 1904.*

Current-operated receiver for electro-magnetic waves: December 2, 1902, serial No. 715053 (43).

Selective signaling by electro-magnetic waves: December 2, 1902, serial No. 715203; May 5, 1903, serial No. 727326.

Transmission and receipt of signals: May 5, 1903, serial No. 727325.

Receivers for electro-magnetic waves: May 5, 1903, serial No. 727327; May 5, 1903, serial No. 727328; May 5, 1903, serial No. 727331. Reissued May 26, 1903, No. 12115. Filed August 27, 1902, serial No. 121172.

Signaling by electro-magnetic waves: May 5, 1903, No. 727329; May 5, 1903, No. 727330; June 9, 1903, No. 730753; October 27, 1903, No. 742779; October 27, 1903, No. 742780. Filed December 29, 1902, serial No. 136969; filed December 29, 1902, serial No. 136970; filed July 8, 1903, serial No. 164738; filed August 8, 1903, serial No. 168800. *Patent 754058, March 8, 1904.* Filed October 1, 1903, serial No. 175364. *Patent 753864, March 8, 1904.*

Signaling by electro-magnetic waves: Filed March 14, 1903, serial No. 147726. *Patent 752895, February 23, 1904.*

An undivided one-third of the entire right, title, and interest in and under said letters patent, and in the inventions described in said applications. Letters patent to issue to himself and said assignee. -

\$1 and other considerations.

Instrument dated November 5, 1903; recorded November 16, 1903; Liber E 68, p. 462; acknowledged November 5, 1902, and November 5, 1903.

PARTIES.

Reginald A. Fessenden, Darwin S. Wolcott, to The National Electric Signaling Company, Corporation of New Jersey. Pittsburg, Pa.

INVENTION.

Current-operated receiver for electro-magnetic waves: December 2, 1902, No. 715043.

Selective signaling by electro-magnetic waves: December 2, 1902, No. 715203; May 5, 1903, No. 727326.

Transmission and receipt of signals: May 5, 1902 (3), No. 727325.

Receivers for electro-magnetic waves: May 5, 1903, No. 727327; May 5, 1903, No. 727331. Reissued May 26, 1903, No. 12115. Filed August 27, 1902, Serial No. 121172.

Receiver for signaling: May 5, 1903, No. 727328. Filed August 27, 1902, No. 727331. Reissued May 26, 1903, No. 12115. Filed August 27, 1902, Serial No. 121172.

Receiver for signaling: May 5, 1903, No. 727328. Filed August 27, 1902, Serial No. 121171; filed September 27, 1902, Serial No. 125032.

Method of utilizing energy of waves: June 16, 1903, No. 731029.

Transmitting messages: Filed March 29, 1901, Serial No. 53441 (*being division of Serial No. 18878*). *Patent No. 777014, December 6, 1904.*

Signaling by wireless telegraphy: Filed June 6, 1902, Serial No. 110461.

Magnetic receiver: Filed September 27, 1902, Serial No. 125030.

Selective signaling: Filed December 29, 1902, Serial No. 136968. *Patent No. 752894, February 23, 1904.*

Wireless telegraphy: August 12, 1902, No. 706735; August 12, 1902, No. 706737. Application filed for reissue October 20, 1903, Serial No. 177821 (9). *Reissued November 10, 1903, No. 12168, Division A.* Application filed for reissue October 20, 1903, Serial No. 177830. *Reissued November 10, 1903, No. 12169, Division B;* August 12, 1902, No. 706738. Filed August (September) 28, 1901, Serial No. 76837. *Patent No. 753863, March 8, 1904.* Filed July 27, 1903, Serial No. 167242; filed August 8, 1903, Serial No. 168795; filed August 8, 1903, Serial No. 168797; filed August 8, 1903, Serial No. 168798.

Apparatus for wireless telegraphy: August 12, 1902, No. 706736; August 12, 1902, No. 706741.

Conductor for wireless telegraphy: August 12, 1902, No. 706739.

Signaling by electro-magnetic waves: August 12, 1902, No. 706745; August 12, 1902, No. 706746; May 5, 1903, No. 727329; May 5, 1903, No. 727330; June 9, 1903, No. 730753; October 27, 1903, No. 742779; October 27, 1903, No. 742780. Filed December 29, 1902, Serial No. 136969; filed December 29, 1902, Serial No. 136970; filed March 14, 1903, Serial No. 147726. *Patent No. 752895, February 23, 1904.* Filed July 8, 1903, Serial No. 164738; filed August 8, 1903, Serial No. 168800. *Patent No. 754058, March 8, 1904.* Filed October 1, 1903, Serial No. 175364. *Patent No. 753864, March 8, 1904.*

Wireless signaling: August 12, 1902, No. 706740; August 12, 1902, No. 706742; August 12, 1902, No. 706743.

Current-actuated wave-responsive device: August 12, 1902, No. 706744.

Apparatus for signaling by electro-magnetic waves: August 12, 1902, No. 706747.

Entire right, title, and interest in and under said letters patent and in the invention described in said applications. Letters patent to issue to said assignee. \$1 and other considerations.

See Record relative to foreign patents.

Instrument dated Jan. 15, 1904. Recorded Jan. 16, 1904.—Liber S. 68, p. 211.

PARTIES.

Reginald A. Fessenden, Darwin S. Wolcott to National Electric Signalling Company, corporation of New Jersey.

INVENTION.

Signalling by wireless telegraphy: Filed June 6, 1902, serial No. 110461.

Receiver for signalling: May 5, 1903, No. 727328. Filed August 27, 1902, serial No. 121171. Filed September 27, 1902, serial No. 125032.

Method of utilizing energy of waves: June 16, 1903, No. 731029.

Transmitting messages: Filed March 29, 1901, serial No. 53441 (*being division of serial No. 18878. Patent No. 777014, Dec. 6, 1904.*)

Magnetic receiver: Filed September 27, 1902, serial No. 125030.

Selective signaling: Filed December 29, 1902, serial No. 136968. *Patent No. 752894, February 23, 1904.*

Signalling by electro-magnetic waves: August 12, 1902, No. 706745; August 12, 1902, No. 706746; May 5, 1903, No. 727329; May 5, 1903, No. 727330; June 9, 1903, No. 730753; October 27, 1903, No. 742779; October 27, 1903, No. 742780. Filed December 29, 1902, serial No. 136969; filed December 29, 1902, serial No. 136970; filed March 14, 1903, serial No. 147726. *Patent No. 752895, February 23, 1904.* Filed July 8, 1903, serial No. 164738; filed August 8, 1903, serial No. 168800. *Patent No. 754058, March 8, 1904.* Filed October 1, 1903, serial No. 175364. *Patent No. 753864, March 8, 1904.*

Wireless telegraphy: August 12, 1902, No. 706735; August 12, 1902, No. 706737. *Application for reissue* filed October 20, 1903, serial No. 177829. Reissued November 10, 1903, No. 12168. (*Division A.*) *Application for reissue* filed October 20, 1903, serial No. 177830. Reissued November 10, 1903, No. 12169 (*Division B*); August 12, 1902, No. 706738. Filed August (*September*) 28 1901, serial No. 76837. *Patent No. 753863, March 8, 1904.* Filed July 27, 1903, serial No. 167242; filed August 8, 1903, serial No. 168795; filed August 8, 1903, serial No. 168797; filed August 8, 1903, serial No. 168798.

Apparatus for wireless telegraphy: August 12, 1902, No. 706736; August 12, 1902, No. 706741.

Conductor for wireless telegraphy: August 12, 1902, No. 706739.

Current-actuated wave-responsive device: August 12, 1902, No. 706744.

Wireless signaling: August 12, 1902, No. 706740; August 12, 1902, No. 706742; August 12, 1902, No. 706743.

Current-operated receiver for electro-magnetic waves: December 2, 1902, No. 715043.

Selective signaling by electro-magnetic waves: December 2, 1902, No. 715203; May 5, 1903, No. 727326.

Transmission and receipt of signals: May 5, 1903, No. 727325.

Receiver for electro-magnetic waves: May 5, 1903, No. 727327; May 5, 1903, No. 727331. Reissued May 26, 1903, No. 12115. Filed August 27, 1902, serial No. 121172.

Apparatus for signaling by electro-magnetic waves: August 12, 1902, No. 706747.

Assign their entire right, title, and interest in said improvements and inventions set out in said letters patent and applications now pending, and in said letters patent, and in all claims for profits and damages for past infringement thereof.

Consideration, \$1.

Instrument dated June 2, 1904; recorded March 3, 1905; liber J 71, p. 238.

PARTIES.

Reginald A. Fessenden to United States Weather Bureau, Department of Agriculture.

INVENTION.

Receiver for electromagnetic waves: May 5, 1903, No. 727331. Reissued May 26, 1903, No. 12115.

Wireless telegraphy: *Original August 12, 1902, No. 706737*; Reissued November 10, 1903, No. 12168; reissued November 10, 1903, No. 12169.

Method of utilizing the energy of waves: June 16, 1903, No. 731029.

Wireless signaling: March 8, 1904, No. 753863.
and other inventions.

In consideration of \$1 and moneys paid in accordance with agreement dated January 9, 1900, between the parties hereto, Fessenden grants license to use the inventions described in said letters patent for the purpose of transmission over land and sea of official messages of said United States Weather Bureau, Department of Agriculture, but for no other purpose, without further charge, except for the apparatus, at actual cost of manufacture, said licensee being hereby further licensed to manufacture the necessary apparatus for this purpose, for its own use, if desired, as provided in said agreement. This in no way waives the rights of this licensee to use in the manner and for the purposes stated other inventions pertaining to wireless telegraphy which may be secured to said Fessenden by any letters patent on applications which may be made by him subsequent hereto; and Fessenden hereby amends accordingly the license granted by him to said Weather Bureau on his original applications for letters patent recorded in Liber K 64, pages 491 and 492 (of Transfers of Patents).

Instrument dated Oct. 9, 1905. Recorded Oct. 12, 1905. Liber R. 72, p. 421.

PARTIES.

Reginald A. Fessenden to The National Electric Signaling Company, Corporation of New Jersey, Pittsburg.

INVENTION.

Transmission of energy by electric oscillations. Filed August 26, 1904, Serial No. 222299.

Capacities: Filed December 14, 1904, Serial No. 236858. *Patent No. 814951, March 13, 1906.*

Method of receiving electro-magnetic waves: Filed January 10, 1905, Serial No. 240507; filed March 30, 1905, Serial No. 252870.

Sending and receiving electro-magnetic waves: Filed August 26, 1904, Serial No. 222302.

Transmission and receipt of electric energy: Filed August 26, 1904, Serial No. 222301.

Apparatus for transmitting and receiving signals: Filed December 2, 1904, Serial No. 235225.

Determining position of vessels: Filed December 14, 1904, Serial No. 236861; filed August 21, 1905, Serial No. 275164 (*being division of Serial No. 236861*).

Wireless signaling: Filed December 14, 1904, Serial No. 236862; filed August 21, 1905, Serial No. 275163 (*being division of Serial No. 236862*); filed January 9, 1905, Serial No. 240269; filed March 22, 1905, Serial No. 251539.

Signaling: Filed July 27, 1905, Serial No. 271539; filed August 21, 1905, Serial No. 275165 (*being division of Serial No. 271539*).

Wireless telegraphy: Filed July 15, 1905, Serial No. 269879 (*being division of Serial No. 167242*).

Capacity: July 4, 1905, No. 793647.

Receiver for electro-magnetic waves: July 4, 1905, No. 793648.

Signaling by electro-magnetic waves: July 4, 1905, No. 793649; July 4, 1905, No. 793650; July 4, 1905, No. 793652.

Aerial for wireless signaling: July 4, 1905, No. 793651.

Wireless telegraphy: July 4, 1905, No. 793718.

Condenser: July 4, 1905, No. 793777.

Receiver for signaling: Filed April 11, 1904, Serial No. 202666.

Receiver for wireless telegraphy: Filed May 2, 1904, Serial No. 206013.

Transmitting and receiving signals: Filed May 4, 1904, Serial No. 206392 (*being division of Serial No. 53441*).

Method of transmitting and receiving signals: Filed December 2, 1904, Serial No. 235226 (*being division of Serial No. 53441*).

Apparatus for receiving electro-magnetic waves: Filed January 10, 1905, Serial No. 240506; filed April 29, 1905, Serial No. 258045.

Receiver for electro-magnetic waves: Filed May 4, 1904, Serial No. 206393; filed January 9, 1905, Serial No. 240268; filed March 22, 1905, Serial No. 251538; filed July 14, 1905, Serial No. 269647.

Generating and receiving electro-magnetic waves: Filed August 26, 1904, Serial No. 222298; filed July 15, 1905, Serial No. 269880 (*being division of Serial No. 167242*).

Magnetic receiver: Filed May 2, 1904, Serial No. 206014.

Amplifying feeble energy effects: Filed August 26, 1904, Serial No. 222300.

Assigns the entire right, title, and interest in and under said letters patent and in the inventions described in said applications. Letters patent to issue to said assignee.

\$1 and other considerations.

See Record relative to foreign rights.

COMMITTEE ON EXPENDITURES IN THE DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES, UNITED STATES,
Washington, D. C. February 12, 1907.

Rear Admiral WILLIAM S. COWLES,

Chief, Bureau of Equipment, Navy Department, Washington, D. C.

MY DEAR SIR: In examining the expenditures in the Department of Agriculture I have taken up the item of experiments conducted by that Department in the development of wireless telegraphy. I learn that sometime since that branch of investigation or branch of service had been transferred from the Department of Agriculture to the Navy Department.

Mr. Reginald A. Fessenden took out quite a number of patents, a list of which you have in a letter on file of the date of February 19, 1906, from the Secretary of Agriculture to your Department.

I would be very glad to have your expert in wireless telegraphy examine that list and advise me which of those patents, if any, are of practical utility in the operation of wireless telegraphy, giving me, so far as it is practicable, a detailed statement in relation to such of them as are of real value. If any patent includes the substance of one previously issued I should be glad to know that fact, if it is a fact, that the latter patent would confer all rights upon the lessee that would be of any value upon the prior patent, and I should be glad to have that stated also. If any of those patents are of utility I wish you would state briefly in what way they are utilized for a valuable purpose, and if any of them are now in use by the Navy Department I should be glad to have you advise me

of that. Please forward to me copies of any correspondence between the Navy Department and the Agricultural Department with reference to Mr. Fessenden and his work for the Department of Agriculture, and, if you care to do so, make any suggestions that seem pertinent with reference to the relations that exist between your Department and Mr. Fessenden in connection with the use of any device he may have patented in relation to wireless telegraphy.

Yours, very respectfully,

C. E. LITTLEFIELD,
*Chairman Committee on Expenditures in the
 Department of Agriculture.*

DEPARTMENT OF THE NAVY.

BUREAU OF EQUIPMENT,

Washington, D. C., February 15, 1907.

SIR: 1. The Bureau begs to acknowledge the receipt of your letter of the 12th instant with reference to the development of wireless telegraphy by the Department of Agriculture and the subsequent relations between the Navy Department and Mr. Reginald A. Fessenden, who had been employed by the Department of Agriculture to work at the development of wireless telegraphy.

2. Briefly stated, the facts are as follows: A contract was entered into between the Secretary of Agriculture and Mr. Fessenden, whereby the latter agreed to give his time and talent to experimental work with wireless, for a consideration, the expenses in connection therewith to be borne by the Government. The character of his work and his standing before the Department of Agriculture are shown in a letter addressed to the Secretary of the Navy, this letter being in reply to one of inquiry by the Secretary of the Navy.

The latter was inspired by a letter from Mr. Fessenden to the Secretary of the Navy dated September 5, 1903. Copies of these communications are inclosed. In 1902 Mr. Fessenden resigned from his position under the Weather Bureau and continued his work independently. In 1904 the control of wireless telegraphy was transferred from the Weather Bureau, Agriculture Department, to the Navy Department, and it was assumed that the rights which had been assigned by Fessenden to the Department of Agriculture, which could not then make use of them, became vested in the Navy Department. These rights, with perhaps one exception, were however of no particular value to the Government. Other inventors had been at work at wireless and invented and patented systems practically as efficient as that of Fessenden. It was then and is now the practice of the Bureau to purchase wireless apparatus after public competition, the successful bidder engaging to protect the Government against claims for infringement of patents. As a result of this policy eight different systems are in use in the Navy, all efficient. Several sets were purchased from the National Electric Signalling Company, who controlled the Fessenden patents, at a reasonable price, but after that their bids were so exorbitant that it was out of the question to buy them. In response to a protest made by Mr. Fessenden against the award of contracts for wireless apparatus to other concerns, the Secretary of the Navy wrote as follows:

"Respectfully returned to the Bureau of Supplies and Accounts, with instructions to disregard, in awarding this contract, the protest of the National Electric Signalling Company. The Department holds that the bids received indicate so strongly the probability that this company is asking an extortionate price of the Government that it feels that it is relieved of any moral obligation which might otherwise exist in the premises—without deciding that any such obligation would exist—to lend its aid to the vindication of the legal rights of the said company under the patents it claims."

3. Mr. Fessenden has repeatedly claimed that all wireless apparatus in use in the Navy infringes his patents, and has demanded large sums of money as damages, amounting to \$1,000,000. The Bureau quotes the following from its indorsement on letter addressed to the Secretary of War dated May 15, 1906:

"1. Respectfully returned to the Department.

"2. The wireless telegraph apparatus in use in the Navy at the various stations on shore, under the control of the Navy Department, and on naval vessels, was purchased in the open market under the requirements of the law, and if Professor Fessenden, or any other patentee believes that such apparatus

infringe patents owned by him, he can proceed against the manufacturers who supplied the apparatus to the Navy.

"3. The National Electric Signalling Company, represented by Professor Fessenden, has always been considered on the same plane as other companies in the same business, when it is desired to procure wireless apparatus, and if contracts were not awarded to him it was because his price was not satisfactory as compared with other bidders.

"4. With reference to the specific claim of Professor Fessenden, that the Navy is using apparatus covered by patents owned by him without his authority and without just compensation to him, the Bureau desires to state that it is not within its province to determine the legal questions involved, or whether such legal questions are involved. This has already been referred to the duly constituted authorities. * * * ."

4. Referring to your inquiry concerning the nature of the Fessenden patents: An examination of these patents discloses the fact that they cover a very good system of wireless telegraphy as systems go. With the exception of the liquid barreter, however, they are or would be of no particular value to the Government.

5. The control of these patents merely places the owner under the same status as a number of other owners who furnish wireless apparatus for the Government. The liquid barreter (commonly known as electrolytic receiver), patent is of considerable value in the art and is used to some extent in the Navy. It is not, however, essential to the efficient and successful working of wireless telegraphy, as there are other detectors in the market, nearly if not quite so efficient. The liquid barreter patent is No. 12115, dated May 26, 1903, which is a reissue of No. 706744, dated August 12, 1902. The Bureau understands that if any patent includes the substance of one previously issued, the later patent would confer upon the lessee all the rights existing under the prior patent.

6. In addition to Mr. Fessenden's claim for infringement on account of the liquid barreter or electrolytic detector, he also claims infringement on account of Nos. 706735 and 707736, covering the current-actuated or perfect contact receiver, claims 31 and 32, and the tuned condenser circuit at the receiving end, claim 6; No. 706737 and reissue patents 12168 and 12169, covering the use of a multiple wire aerial, also a large capacity aerial; No. 706742, covering means for eliminating electrostatic disturbances; and No. 706746, covering the use of the wave chute or artificial ground.

Very respectfully,

WM. S. COWLES,
Chief of the Bureau of Equipment.

HON. CHARLES E. LITTLEFIELD, M. C.,
Committee on Expenditures in the Department of Agriculture,
House of Representatives, Washington, D. C.

NAVY DEPARTMENT,
Washington, September 15, 1903.

SIR: This Department has received a letter on the subject of wireless telegraphy from Mr. Reginald A. Fessenden. This letter is so extreme in reference to inventions claimed to have been made by him and royalties due on account of the use by this Department of other systems of wireless telegraphy that the Department is desirous of obtaining some information concerning the character.

It is understood that Mr. Fessenden was formerly an employee of the Agricultural Department, and that he experimented with wireless telegraphy under its direction for a considerable period. The Department would very much appreciate a statement of the facts in the case, and would be glad to receive your opinion of the merits of his claims.

Respectfully,

W. H. MOODY, *Secretary.*

The SECRETARY OF AGRICULTURE.

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., September 19, 1903.

The SECRETARY OF THE NAVY.

SIR: Replying to your letter of the 15th instant, requesting information in regard to the employment of Mr. Reginald A. Fessenden by this Department, I have the honor to inform you that Mr. Fessenden was employed in the Weather Bureau of this Department from January 19, 1900, to August 31, 1902, when he resigned.

* * * * *
He was employed during his term of service in experiments in wireless telegraphy, and was furnished with ample assistance and all the apparatus and equipments that he asked for.

* * * * *
Very respectfully, your obedient servant,

J. H. BRIGHAM,
Acting Secretary.

[First indorsement.]

NAVY DEPARTMENT, September 23, 1903.

Subject: Agricultural Department: Record of Service of Reginald A. Fessenden in Weather Bureau.

Respectfully referred to the Bureau of Equipment for its information.
By direction of the Secretary of the Navy:

B. F. PETERS,
Chief Clerk.

OLD POINT COMFORT, VA., September 5, 1903.

SECRETARY OF UNITED STATES NAVY,
Washington, D. C.

DEAR SIR: We have been for a number of years engaged in developing a system of wireless telegraphy. A large amount of money has been spent in doing this and a system has been developed which Lieutenant Hudgins (the Navy expert for wireless telegraphy) will, I believe, inform you is much superior to any other system in existence. During the recent tests which were made by the Navy at Fortress Monroe, Lieutenant Hudgins inspected our stations and ascertained the fact that although our masts were only 50 feet high we were receiving messages over distances much longer than those covered by the Slaby-Arco and other systems which were being tested with masts 135 feet high. In addition our system is the only one free from atmospheric disturbances and from interference generally. It is also capable of covering very much longer distances than any other system, and at the present time we are operating stations between New York and Philadelphia with an expenditure of one-quarter of a horsepower and masts only 135 feet high. If my understanding is correct, the Slaby-Arco people were barely able to operate between Annapolis and Washington, a distance of 30 miles, when using masts 175 feet high and more than 1 horsepower of energy.

We should be glad to have your expert witness the operation of our stations at New York and Philadelphia at any time which may be convenient to you. We would also be very glad to install for you stations for working between Cape Henry and Annapolis. Our apparatus will do this with the greatest ease, while I believe you will not be able to find any other system capable of doing this which does not use our methods.

I should also like to have an interview with you to secure some information as to the best means of taking up the question of the royalties on apparatus which are due us from the Navy. As you are aware, the Navy has purchased some 20 or 30 sets of Slaby-Arco apparatus, which apparatus infringes a number of

our most important patents. In fact, the Slaby-Arco people would not be able to operate more than a few miles if it were not for the fact that they are using the methods invented by us and covered by our United States patents. These patents have been investigated by Messrs. Kenyon & Kenyon, who are perhaps the most eminent patent lawyers in this country, and have been declared valid and sustainable in court.

We therefore are desirous of taking the proper steps to secure the royalties due us from the Navy for the use of our patented apparatus as used by the Slaby-Arco people. These royalties will amount to somewhere in the neighborhood of \$3,000 per set, and the total will therefore be considerable.

In this connection I would respectfully call your attention to the different attitude taken by the United States Government and the German Government in connection with the subject of wireless telegraphy.

In Germany every assistance has been afforded by the Government to Professor Slaby, considerable sums of money have been granted him, he has been decorated by the Emperor, and his apparatus has been adopted by the Government, in spite of the fact that the forms are largely made up of methods devised and patented by us and by the Marconi Company.

In this country, on the other hand, although we have spent, up to date, more than \$100,000 in experimental work and have devised apparatus which is vastly more sensitive and very much more reliable, which can be used for sending code messages in all kinds of weather and which is very much more free from outside disturbances; up to date the United States Government has declined to buy a single set of apparatus. In fact, so far from affording us any encouragement whatever, the Government has gone out of the country and purchased apparatus which is not only very much inferior to ours, but which obtains what value it has from the fact that it is an embodiment of the ideas invented and patented by us.

I am, of course, aware that this state of affairs would not exist had you been aware of the circumstances, and I am in hopes that it will be remedied when it is called to your attention. I would respectfully request the honor of a personal interview with you at such time as may be convenient to you, and would suggest that possibly the facts in the case may be arrived at in the shortest possible time if Lieutenant Hudgins were present to afford information as to the operation of the different types of apparatus, and one of our lawyers were present to make the patent situation clear. I am,

Very truly, yours,

REGINALD A. FESSENDEN.

[First indorsement.]

NAVY DEPARTMENT,
September 9, 1903.

Subject: Fessenden, Reginald A., Old Point Comfort, Va. Calls attention to inefficiency of other wireless telegraph systems as compared to their system, and requests interview to demonstrate same; also as to amount of royalties due them.

Respectfully referred to the Bureau of Equipment for report and recommendation.

By direction of the Secretary of the Navy:

B. F. PETERS, *Chief Clerk.*

(Witness: Zappone.)

DIVISION OF ACCOUNTS AND DISBURSEMENTS.

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., January 29, 1907.

The committee met at 10 o'clock a. m.

Present: Messrs. Littlefield (chairman) and Samuel.

**STATEMENT OF MR. A. ZAPPONE, CHIEF OF DIVISION OF ACCOUNTS
AND DISBURSING CLERK, DEPARTMENT OF AGRICULTURE.**

The CHAIRMAN. You are the chief of the Division of Accounts and disbursing clerk?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Has your division had charge of the expenditure of the sums appropriated for the building for the Department of Agriculture?

Mr. ZAPPONE. The Division of Accounts has paid the accounts. The expenditure of that money is under the direction of a building committee, of which Doctor Galloway is the chairman. All expenditures from the fund are directed by the committee.

The CHAIRMAN. This building was authorized by the act approved February 9, 1903, and entitled "An act for the erection of a building for the use and accommodation of the Department of Agriculture?"

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. And that act, in its first section, authorized the Secretary of Agriculture "to cause a suitable and commodious fire-proof building, for the use and accommodation of the Department of Agriculture, including all of its bureaus and offices now occupying rented quarters in the District of Columbia, to be erected on such portion of the grounds of the Department of Agriculture belonging to the United States as he may deem expedient immediately in the vicinity of the present building," etc. The limit of the cost of the completed building, including heating and ventilating apparatus, elevators, and approaches, and the cost for the removal of the present building or buildings of the Department of Agriculture, was fixed at \$1,500,000; and the act provided that "no contract shall be entered into or expenditure authorized in excess of said amount." That is section 3, is it not?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. How much money has been appropriated under that act, up to date, giving years?

Mr. ZAPPONE. \$1,250,000; as follows: \$250,000 in the fiscal year 1904; \$700,000 in the fiscal year 1906, and \$300,000 in the fiscal year 1907.

(Witness: Zappone.)

The CHAIRMAN. What has been done under that appropriation; first, with reference to the site and foundations?

Mr. ZAPPONE. Mr. Chairman, as I have only been at the Department a little over a year, I really can not answer that question, but Doctor Galloway would be able to give you full information.

The CHAIRMAN. Section 2 provides for the supervision of the construction of the building by some person to be appointed by the Secretary of Agriculture, subject to the approval of the head of the Department in which the officer is employed. Did the Secretary appoint an officer or a board?

Mr. ZAPPONE. He appointed both an officer and a board, according to my recollection.

The CHAIRMAN. Who was the officer?

Mr. ZAPPONE. Capt. John S. Sewell, of the Engineer Corps.

The CHAIRMAN. And who is the chairman of the board?

Mr. ZAPPONE. Doctor Galloway.

The CHAIRMAN. Since you have been at the head of the Division of Accounts you have had the disbursement of the appropriation for the construction of the building?

Mr. ZAPPONE. I have, sir.

The CHAIRMAN. And that is all the connection you have had with it?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. You simply disburse the funds upon vouchers and orders approved by the men who have charge of the construction?

Mr. ZAPPONE. That is it, exactly.

The CHAIRMAN. You had nothing to do with the original location or the character of the building?

Mr. ZAPPONE. Nothing whatever.

The CHAIRMAN. You did not have the management of any details, but simply disbursed the funds as the vouchers came to you?

Mr. ZAPPONE. That is right, sir.

The CHAIRMAN. Do you have charge of the personnel in your Division?

Mr. ZAPPONE. I have, sir.

The CHAIRMAN. Will you state, in a general way, how the salaries are arranged, the distinction between the services rendered by the different classes, and the question of promotion?

Mr. ZAPPONE. The force in the Division of Accounts, as you will notice, is rather small. It consists of about 23 employees, their salaries ranging from \$600 up to \$2,000 in the strictly clerical grades. The low-grade man is practically a messenger; in the appropriation bill for next year I recommended that the title be changed to that of messenger. The clerks in the next grade, \$720, are occupied principally with copying, indexing, and work of a more or less mechanical nature. The next two grades, \$1,000 and \$1,200, include stenographers, typewriters, and assistant bookkeepers. The next grade, the \$1,400 grade, comprises the draft clerks and some of the auditors. The \$1,600 men are auditors, as are also the \$1,800 man and the \$2,000 man.

The auditing in a Department like the Department of Agriculture is an immense undertaking. We handle on an average about 75,000 accounts a year—at least, that will be the amount for the present

(Witness: Zappone.)

fiscal year. The accounts vary greatly, so far as their importance and technical character are concerned. In other words, salary accounts, naming a specific amount for salary, are rather easy to audit, provided there are no broken periods of service involved. There are salary tables to follow, and the auditors assigned to that work are principally clerks in the \$1,400 grade. In the \$1,600 and \$1,800 grades the auditing becomes very much more difficult, the vouchers relating principally to freight accounts, which involve both land-grant and bond-aided amounts, and travel accounts, which are surrounded by many technicalities. The line of demarcation between these grades is very distinct, and promotions are progressive promotions, based upon efficiency and the quality and character of the work turned out by the employee; not on length of service. Length of service is only considered as a factor when other conditions are equal.

I would like to add here that during the past five years there has been no increase in the force of the Division of Accounts, while the appropriations of the Department have increased practically 100 per cent. In consequence, during the present year the Secretary has had to detail four clerks to my office to assist in the work. The Committee on Agriculture for next year has permanently provided for those clerks on my statutory roll, and has also given me a few extra clerks to handle the additional work resulting from the increased appropriations. In the appropriation bill for next year the increase, as the bill came from the Committee on Agriculture, is something like a million dollars. You can readily understand that with these increased appropriations we must have additional help to disburse them.

The CHAIRMAN. That simply increases the volume of work?

Mr. ZAPPONE. It increases the volume of work. We have the machinery for doing that work; it merely means that it takes a few more people to do it. For instance, a few years ago we had but one draft clerk. Now, during the first ten days of each month it takes six people to handle that work. This shows the present volume of the work and incidentally the way the business of the Department has grown.

The CHAIRMAN. Is there a substantial distinction between the duties discharged by these various grades of clerks?

Mr. ZAPPONE. Undoubtedly, as I have already explained.

The CHAIRMAN. That is, do you mean by that that the clerks of different grades do different things, or that the work differs in quality?

Mr. ZAPPONE. They do different things, in this way: The quality or character of the work is different, as I have just explained in regard to the accounts. We have simple or easy accounts to audit; we have moderately difficult accounts to audit; and we have very difficult accounts to audit. I have known an auditor to spend an entire day on one exceptionally difficult account.

The CHAIRMAN. That requires one of the experts?

Mr. ZAPPONE. That requires an expert. I will say, Mr. Littlefield, that we go over all accounts very closely indeed. If you recall, the accounting officer of the Treasury said that our accounts were in very nice shape; the best that came to his office.

(Witness: Zappone.)

It might be proper to add right here that when I assumed charge of the Division of Accounts the Secretary of Agriculture issued the following order:

General Order, } UNITED STATES DEPARTMENT OF AGRICULTURE,
No. 95. } OFFICE OF THE SECRETARY,
Washington, D. C., February 15, 1906.

Hereafter, with a view of securing uniformity, the Chief of the Division of Accounts and disbursing clerk, as chief financial officer of this Department, will inquire into the receipt and disbursement of all moneys, the auditing of all accounts, the keeping of all liabilities, and the methods of doing business in connection therewith, in the various bureaus and independent divisions of the Department of Agriculture, making inspections from time to time, and reporting to me any change or modification necessary toward facilitating the public business and safeguarding the moneys of the United States.

JAMES WILSON,
Secretary of Agriculture.

In accordance with that order, I have already made an inspection of all bureaus and divisions, with the exception of one or two of the larger bureaus. I found that they were transacting and keeping a record of their financial affairs and the auditing of accounts in a very excellent way, but that they were using too many books, and that there was a slight lack of uniformity. I called together in my office all the accounting clerks of the various bureaus and divisions, discussed the matter with them very thoroughly, and recommended the adoption of two books which I had planned, one of which I called a liability book and the other a ledger. They fully agreed with me that the adoption of these books would be very advantageous, as it would bring about uniformity. That system has since been put into effect.

The CHAIRMAN. That also simplified the work?

Mr. ZAPPONE. It simplified the work very much. If the committee is sufficiently interested in the subject, we can have these books here, with one of the accounting clerks to explain them. I do not know that you wish to go into it to that extent, but in that way you could see the method of handling accounts in the different bureaus before they are sent to me for payment.

The CHAIRMAN. Was the expense of going over the accounts reduced as a result of this simplification?

Mr. ZAPPONE. Yes, sir; it was. In one bureau, by consolidating the work under the new system, a single clerk is now doing the work that was formerly done by two.

The CHAIRMAN. The fact is, then, that it minimized the expense to quite a degree?

Mr. ZAPPONE. Noticeably, in that one case at least. In the other cases only one clerk was doing the work formerly, and the reduction in expense would mean that he would have more time to apply to other purposes.

The CHAIRMAN. That is the same thing. He is able to render more service in other directions than he was able to render before?

Mr. ZAPPONE. Yes, sir; I think he is now able to render more service in other directions.

The CHAIRMAN. How are the accounts of the Department audited?

Mr. ZAPPONE. The method of auditing and paying accounts may be summed up briefly as follows: All accounts against the Department go direct to the bureaus and divisions having supervision of the

(Witness: Zappone.)

disbursement of the several funds, where they are given a preliminary audit and are checked up with their records, to see that the expense has been properly authorized. For example, if it is an account for expenses incurred by one of their men, such as an account for travel, or personal services, the bureau checks it to see in the first case whether the journey has been authorized, or in the second case that the man has actually performed service during the period named. The account is then approved by the chief of bureau and sent to my office for payment. My clerks then give these accounts a close examination, which is at one and the same time an audit for my protection—I am bonded to the United States in the sum of \$50,000—and an administrative scrutiny for the Secretary's office. I am financially responsible for all disallowances which may be made by the accounting officers of the Treasury; therefore a very careful audit in my office is necessary. After this examination the accounts are paid; but before they go to the Treasury they are abstracted and given a final review by three men, my best experts, who pass upon their form and style, for the purpose of eliminating any little technical irregularities which may have escaped notice in the first audit.

The subsequent course which these accounts take is briefly but clearly set forth in the Secretary's order of October 9, 1906, which reads as follows:

General Order, } UNITED STATES DEPARTMENT OF AGRICULTURE,
 No. 102. } OFFICE OF THE SECRETARY,
 Washington, D. C., October 9, 1906.

In compliance with Treasury Department Circular No. 51, from the Comptroller's Office, under date of June 22, 1906, in regard to certification of administrative examination of accounts, the disbursing clerk of the Department of Agriculture will hereafter submit his consolidated account current and abstracts of disbursements to the Secretary of Agriculture (chief clerk's office) promptly after the end of each quarter. The chief clerk will refer the abstracts of disbursements to the chiefs of bureaus and divisions having charge of the appropriations to which the abstracts pertain, who will have them carefully examined and compared with the records of their bureau or division. In order to prevent possible collusion, the examination should be by persons other than those who prepared and checked the vouchers before payment. Such examinations will be evidenced on the abstracts, with the prompt return thereof, in the following manner:

Bureau }
 Division }
 Date:, 190 .

Respectfully returned to the Secretary of Agriculture. I certify that this abstract has been carefully examined and compared with the records of this {Bureau }
 {Division}. Credit for expenditures in the amount of \$., which is hereby approved, is recommended.

.....
 Chief of {Bureau }
 {Division}

This indorsement should be accompanied by a statement of differences, when such differences are found in the account.

Should reference to the vouchers be necessary in special cases, they will be found on file in the disbursing clerk's office and may be examined at any time.

Upon return to the chief clerk of all the abstracts, he will reassemble the account, have the same approved by the Secretary of Agriculture, and transmit it direct to the Auditor for the State and other Departments, Treasury Department, Washington, D. C.

JAMES WILSON,
 Secretary of Agriculture.

(Witness: Zappone.)

Please note that after I have sent these accounts to the Secretary's office I do not see them again. All subsequent action in connection therewith is independent of my office.

In regard to the system of bookkeeping employed in the Division of Accounts and Disbursements, I took the liberty the other day of asking the committee to permit me to bring the books up here for examination, or, better still, to have the committee visit the Department and examine them there. As you are very busy, I can bring them up to you this afternoon, and in a very short time, with the aid of my bookkeeper and assistant bookkeeper, show you the kind of books we actually keep and give you a clear insight into our work.

The CHAIRMAN. If you think it will be of advantage, we shall be very glad to look them over at that time.

Mr. ZAPPONE. I do, sir. They are all up-to-date, modern books which I introduced into the Department. I shall also bring my combined account current, which, as Mr. Jacobs, the accounting officer of the Treasury has explained to you, shows the financial transactions of my office for an entire quarter. The form which I shall exhibit briefly summarizes the expenditures of the quarter ended December 31, 1906.

(When the committee reconvened at 2 p. m., Mr. Zappone, accompanied by his bookkeeper and his assistant bookkeeper, displayed the financial books of the Department and explained in detail the methods employed by the disbursing office in recording the expenditures of the Department.)

The CHAIRMAN. What rule obtains in your division in relation to promotions—upon what basis are they made?

Mr. ZAPPONE. The promotions are based upon the general plan of the Department; that is, upon an efficiency blank, setting forth the different elements that go to make up the basis or foundation for each promotion. The character and quality of the work of each clerk are very carefully determined and made a part of the record. Upon that record I base my recommendation to the Secretary for the promotion of a clerk when a vacancy occurs in my division. That goes to the board on promotion review, consisting of the chief clerk, the appointment clerk, and myself. When the recommendation made by me is seen to be in accordance with the efficiency reports, the board forwards the papers to the Secretary, and the promotion is made.

The CHAIRMAN. Have you had any reductions in your office by the operation of that rule?

Mr. ZAPPONE. Yes; I have been compelled to make one reduction. I say "compelled," because I think it is something that none of us, as a rule, want to do. But I found that one of the clerks of my division was receiving more money than was earned, and I recommended a reduction from \$1,400 to \$900.

The CHAIRMAN. That was quite a pronounced reduction.

Mr. ZAPPONE. It was a pronounced reduction, but I felt that it was necessary in that case.

The CHAIRMAN. Was that reduction based on the efficiency report?

Mr. ZAPPONE. It was based on the efficiency report, which showed that the work of this particular employee was not up to the standard of the \$1,400 grade. In auditing accounts a number of mistakes had been made, showing a waning efficiency.

(Witness: Zappone.)

The CHAIRMAN. Have you any employees in your division who are now occupying grades higher than the efficiency reports would justify them in holding?

Mr. ZAPPONE. That is a very difficult question for me to answer, Mr. Littlefield. All of my clerks do very good work. Some are more efficient than others, but they are all doing excellent work, and I think I can safely say that my clerks will compare favorably with the clerks in any other branch of the Department.

The CHAIRMAN. The question was whether the positions they now hold are justified by their efficiency rank obtained in the manner that you have described.

Mr. ZAPPONE. They certainly are, sir.

The CHAIRMAN. Have you in your division anyone who has employment outside for private parties?

Mr. ZAPPONE. No, sir.

The CHAIRMAN. Do you have anybody in your division who is employed in any other?

Mr. ZAPPONE. No, sir. I have an assistant chief of division who is in charge of the branch of my division at the Weather Bureau, and works there and at my office at times.

The CHAIRMAN. But only on one salary?

Mr. ZAPPONE. Only one salary; and that, of course, is earned directly in connection with the work of my division.

The CHAIRMAN. Make any statement you like, Mr. Zappone, with reference to the general duties of your division, so that the record will show exactly what work is done by your division, what it accomplishes, and its utility and necessity.

Mr. ZAPPONE. The Division of Accounts and Disbursements audits, adjusts, and pays all accounts and claims against the Department; decides questions involving the expenditure of public funds; prepares advertisements and schedules for annual supplies, and letters of authority; writes, for the signature of the Secretary, all letters to the Treasury Department pertaining to fiscal matters; examines and signs requisitions for the purchase of supplies, and issues requests for passenger and for freight transportation; prepares the annual estimates of appropriations, and transacts all other business relating to the financial interests of the Department.

One of the important functions of the division which I have just stated is the preparation of the annual estimates to Congress, and I would like to show you the forms used for that purpose.

(The witness showed the above-mentioned forms to the chairman and explained them.)

It is also the duty of the Division of Accounts to advise monthly the chief of each bureau and division as to how much money has been disbursed from his funds, and announce to that division the balance available at the end of each month.

The CHAIRMAN. That is under that statute which requires the head of the Department to apportion the appropriations?

Mr. ZAPPONE. Yes, sir; it has a direct bearing on that.

The CHAIRMAN. How do you find that law to work which requires the sums appropriated to be apportioned over the year?

Mr. ZAPPONE. Most satisfactorily, sir. We have not had a de-

(Witness: Zappone.)

iciency since it went into effect, and I do not think there is any danger of one.

The CHAIRMAN. And before that time deficiencies were occurring all the while?

Mr. ZAPONE. We had deficiencies every year.

Returning to our subject: At the end of the month the chief of each bureau and division renders to my office a statement of the liabilities incurred by him—that is, the obligations that he has incurred. I send to him the actual disbursements; he sends to me what he has contracted ahead. Thus we check each other, and I then make a report to the Secretary, showing him both the disbursements and the outstanding liabilities, so that he may see just how each bureau and division is operating.

With the permission of the committee I shall insert in the record at this point a summary of the Department's expenditures for the fiscal year 1906, taken from the last page of the "Littlefield report;" it has a direct bearing on this whole testimony.

The CHAIRMAN. Certainly.

The summary is as follows:

Recapitulation of the several appropriations for the entire Department of Agriculture as distributed among the following groups, and the total expenditures under each.

Statutory salaries.....	\$649, 922. 52
Lump-fund salaries in Washington.....	825, 427. 59
Lump-fund salaries outside of Washington.....	2, 371, 307. 34
Stationery.....	76, 070. 47
Miscellaneous supplies and services, equipment, books, apparatus, machinery, and laboratory materials of all kinds.....	852, 457. 54
Furniture.....	41, 155. 31
Fuel.....	20, 054. 70
Freight.....	16, 796. 62
Express.....	8, 968. 98
Telegraph.....	218, 390. 31
Telephone.....	18, 522. 41
Rent.....	109, 316. 54
Gas and electricity.....	13, 102. 04
Traveling expenses.....	446, 990. 30
Station and field expenses.....	53, 691. 71
Printing.....	92, 065. 39
Total for entire Department of Agriculture.....	<u>5, 814, 239. 77</u>
Total appropriations for Department of Agriculture.....	6, 134, 757. 95
Total expenditures under above groups.....	<u>5, 814, 239. 77</u>
Balance.....	320, 518. 18
Advances to temporary disbursing agents.....	\$74, 916. 39
To amount appropriated for Museum, which was not used but turned back into Treasury.....	2, 260. 00
	<u>77, 176. 39</u>
Repayments to appropriations through Treasury.....	243, 341. 79
	<u>893. 31</u>
Unexpended balance.....	244, 235. 10
Of this amount, the balance under the permanent appropriation for "building, Department of Agriculture," on June 30, 1905, which is available until used, was.....	168, 297. 27
Making the unexpended balance.....	<u>75, 937. 83</u>

(Witness: Zappone.)

Mr. SAMUEL. How were the different grades in the statutory roll originally established?

Mr. ZAPPONE. The grades in the statutory roll were fixed by section 167 of the Revised Statutes, which reads as follows:

The annual salaries of clerks and employees in the Departments, whose compensation is not otherwise prescribed, shall be as follows:

First. To clerks of the fourth class, eighteen hundred dollars.

Second. To clerks of the third class, sixteen hundred dollars.

Third. To clerks of the second class, fourteen hundred dollars.

Fourth. To clerks of the first class, twelve hundred dollars.

Fifth. To the women employed in duties of a clerical character, subordinate to those assigned to clerks of the first class, including copyists and counters, or temporarily employed to perform the duties of a clerk, nine hundred dollars.

Sixth. To messengers, eight hundred and forty dollars.

Seventh. To assistant messengers, seven hundred and twenty dollars.

Eighth. To laborers, seven hundred and twenty dollars.

Ninth. To watchmen, seven hundred and twenty dollars.

Additions to these grades have been made by Congress from time to time, until to-day we find the statutory rolls as they appear in the Digests of Appropriations.

The CHAIRMAN. The document that included the expenditures in the Department of Agriculture prior to the conference between this committee and yourself on the part of the Department of Agriculture, consisted of a volume of 584 printed pages, giving all of the details without any classification or summarized statement, did it not?

Mr. ZAPPONE. It did, sir. It was an exact transcript from the cash books of the disbursing office.

The CHAIRMAN. Under the instructions of our committee, you prepared for 1905, as well as 1906, a condensed, summarized, and classified list of expenditures, which we have been using in the examination?

Mr. ZAPPONE. I did.

The CHAIRMAN. And that consisted of only about 294 printed pages?

Mr. ZAPPONE. It was just about one-half the size of the other volume and gave the matter in a more succinct form. In other words, it gave the per annum cost instead of the separate-account cost.

The CHAIRMAN. And for the purposes of investigation and research or the ascertainment of conditions or expenditures in the Department, was worth vastly more than the original detailed statement?

Mr. ZAPPONE. It was, sir; the value of the information has increased more than 100 per cent. The volume is twice as valuable as it was before and costs only half as much.

The CHAIRMAN. By the adoption of that plan the cost to the Government has been reduced practically 50 per cent?

Mr. ZAPPONE. Over 50 per cent—from \$5,306 to \$2,153, approximately.

The CHAIRMAN. How about the cost of preparation?

Mr. ZAPPONE. The cost of preparation, I find, is about \$5,000 at the present time, while under the old method the cost was about \$3,000, making the additional cost about \$2,000, which you will see is more than offset by the saving which has already been accomplished in the cost of printing. And if the committee will agree to have this report submitted in manuscript form it will further reduce the cost.

The CHAIRMAN. By "manuscript form" you mean manifold typewritten copies?

(Witness: Zappone.)

Mr. ZAPPONE. Yes, sir; by means of a rotary mimeograph I can strike off at least 50 copies from one writing on the typewriter. The cost of such a machine will be about \$50. In other words, instead of paying \$2,153 for printing the report in the future, if your committee can get along with the manuscript copy and be satisfied with about 50 copies, half of which I would like to have for the use of the Department, I think it will answer every purpose and further reduce the cost.

The CHAIRMAN. How much would it cost to give us the 50 typewritten duplicates?

Mr. ZAPPONE. I have estimated that in the clerk cost for getting out the report. I have set aside \$1,000 for typewriting at the end of the year.

The CHAIRMAN. That same amount of typewriting would be involved in the case of printing?

Mr. ZAPPONE. It will be involved in the case of printing just the same.

The CHAIRMAN. So that, with the expenditure of that same \$1,000, the only extra expense in getting up the report in manuscript shape would be the material used in duplicating and the duplicating machine?

Mr. ZAPPONE. Yes, sir.

The CHAIRMAN. Then all it would cost the Government, over and above the \$1,000 for typewriting, would be not over two or three hundred dollars, if that?

Mr. ZAPPONE. Not as much as that.

The CHAIRMAN. It would probably not be over \$100?

Mr. ZAPPONE. Not over \$100, sir.

The CHAIRMAN. So that, instead of its costing the Government, say, \$3,500, or whatever it is, to print this report, we could get in typewritten shape, using our printed reports that we now have as a basis for comparison, a report that would cost the Government only about \$100, exclusive of clerk hire?

Mr. ZAPPONE. That is right, sir.

Mr. SAMUEL. And the machine could be used for future reports?

Mr. ZAPPONE. It could be used each year.

Mr. SAMUEL. And could it be used for other purposes in the Department?

Mr. ZAPPONE. Yes, sir. There are a number of times when it is necessary to get out circular letters. One copy of the letter could be typewritten in the form of a wax stencil and additional copies struck off on the mimeograph machine.

Mr. SAMUEL. So that the machine would not necessarily be used only for this purpose?

Mr. ZAPPONE. It would not necessarily be confined exclusively to this purpose, but could be used for other purposes.

The CHAIRMAN. Unless you hear from the committee to the contrary before the adjournment of this session it may be understood that we will get along with the manifold typewritten copies. That will reduce the expense to an almost negligible amount.

Mr. ZAPPONE. Yes, sir.

Mr. SAMUEL. You have the authority, under your law, to purchase that machine, have you?

(Witness: Zappone.)

Mr. ZAPPONE. Yes, sir; we could purchase that from the contingent fund. It would be for the general use of the Department, and would be a proper charge against that appropriation.

The CHAIRMAN. Do you know whether the other Departments of the Government, as to which there are committees on expenditures, are preparing these lists of expenditures and having them printed, as the Department of Agriculture has been doing for the last few years?

Mr. ZAPPONE. I understand that some of the Departments have been doing that, at least quite recently; but none of the other Departments, to my knowledge, classifies the expenditures in the way we have classified them.

The CHAIRMAN. That is, the way that we have had it done for the last two years?

Mr. ZAPPONE. Yes, sir. I mention this, because I know that some of the officials of the Treasury Department are interested in the matter. The Association of Accounting Officers have asked me to deliver an address on this very subject. That is a little out of my line, but it shows that they are interested in the work. I would like to show you the cards used in indexing the expenditures for final compilation.

(The witness showed to the chairman the cards referred to.)

The CHAIRMAN. This is a line of work suggested to your Department by this Committee on Expenditures?

Mr. ZAPPONE. This reclassification was entirely at the suggestion of this Committee on Expenditures. They not only suggested it, but suggested the groups; and I wish to say that it has been found most useful to me in my work and also to the officials of the various bureaus and divisions. They can pick up one of these printed volumes and tell at a glance just what their expenditures have been for the year for each of these specific groups.

Mr. SAMUEL. The suggestion that the report be prepared by this duplicating machine was made by this committee, was it not; or was that suggested to the Department previous to the hearings of this committee?

Mr. ZAPPONE. The suggestion really came to me in an informal way from the chairman of this committee. I looked into the matter, going to the Government Printing Office for that purpose. I found a duplicating machine there, but it was not only too expensive, but too hard to manipulate for our purposes. Then I discovered that the Edison rotary machine was more simple in its operation, much cheaper, and would answer our purpose just as well. That is how this change originated.

The CHAIRMAN. To what extent, if any, have employees or representatives of the Department of Agriculture traveled upon passes heretofore? Have you examined into this question? If so, state fully what you have found in relation thereto.

Mr. ZAPPONE. It is estimated that the money value of passes issued by the various railroads to employees of the Department of Agriculture during the fiscal year ended June 30, 1906, was approximately \$90,000, \$80,000 of which was for passes used by the meat inspectors of the Bureau of Animal Industry in making interstate inspection of cattle and sheep before shipment. This inspection is

(Witness: Zappone.)

almost entirely in the interests of the carriers. The remaining \$10,000 of the amount named is divided among the other Bureaus of the Department. As the new rate law prohibits the use of passes after January 1, 1907, this privilege which the Government has enjoyed in past years has now been discontinued and has necessitated additional appropriations by Congress to that extent.

The CHAIRMAN. Much has been said before the committee as to the various lines of investigation that have been pursued and the projects that are from time to time started under the various bureaus. Is there any uniformity of practice or any rule in relation to that in the Department? If there is, state what it is.

Mr. ZAPPONE. About a year and a half ago the Assistant Secretary of Agriculture, under instructions from the Secretary, directed each bureau to submit, on a printed form which had been prepared for the purpose, a brief statement of all projects then in operation, together with the probable date of their completion and their ultimate cost. The circular of instructions also provides that supplemental reports on these projects shall be made every six months. These projects are similar to those that are shown in the "Littlefield report," after the summary of expenses, except that there they deal principally with the expense necessary under each item, while in this statement, just referred to, there is given a general and more complete outline of the work being conducted. I submit a blank project form herewith, which I would like to have made an exhibit.

The form referred to is as follows:

DEPARTMENT OF AGRICULTURE,
Washington, D. C.

MEMORANDA OF PROJECTS OR LINES OF WORK IN THE DEPARTMENT OF AGRICULTURE.

In general, the plan of memoranda of projects or problems contemplates a "project" as a line of work delegated to a given man, called a "leader," with one or more helpers; for example: "Study of Decay in Oranges During Shipment;" "Breeding Carriage Horses;" "Survey of Soils in Lyon County, Minn.;" "Stamping Out Foot-and-Mouth Disease in New England."

It is designed that these memoranda shall be written on ordinary letter sheets, from 8 by 10 to 9 by 11 inches; that each project may be given a folder in a vertical filing case where the original and any supplementary or revised memoranda may be filed under its appropriate heading in a logical scheme with suitable reference card catalogues arranged by names of leaders, bureaus, etc.

It is requested that too much technical detail be avoided, that this may be a key to information rather than a depository of detailed technical statements.

Each project leader in the Department, in an experiment station, or elsewhere, where the Department has cooperative relations, who assembles the data for a project statement should have a copy of this memorandum, that all may follow the same general plan.

NORMAL COURSE OF SUGGESTED PROJECTS.

- a. Preparation of project statement by leader.
- b. Reference to chiefs. Revision and suggestions for changes in scheme of work or in plan of organization and cooperation.
- c. Reference to Secretary's office. Revision, suggestion, and reference back for correction and approval by leader and chief.
- d. Approval by Secretary's office and placing copy on file in office of leader, of chiefs, and in Secretary's office.

Supplemental records on each project are due to be filed on January 1 and July 1 of each year.

(Witness: Zappone.)

SUGGESTED OUTLINE OF POINTS TO BE COVERED IN MEMORANDUM. *a*

Name: (Place in center—see sample project.)

Project numbers: Under this head is placed the U. S. Department of Agriculture number for this project, also the bureau number, division number, laboratory number, etc.; and, if cooperative, the station or institution number, with respective subdivision numbers, all names being abbreviated, as:

U. S. Dept. No. ——— B. A. I. No. ———
Minn. No. ——— Agr. No. ———

Also reference to other projects bearing upon this project, as:

See ——— No. ———

Date suggested:

Date authorized:

Date begun:

Objects: State clearly.

Location:

Leaders: Names and location of leaders and others prominently assisting and cooperating. (Names only are desired here.)

Organization and cooperation: Briefly state entire plan of organization, whether part is under cooperation and part is independent, etc. (Matters of administration and contracts only should be recorded under this head.)

Sources of maintenance:

Method of procedure: Here the method of approaching the problems (defined under objects, above) should be briefly set forth. Where practicable, project the plan for the entire period of time required to complete the work; following with plan for annual or other natural periods of division of the work.

Probable date of completion:

Cost to date:

Estimated ultimate cost:

Publications issued:

Publications in preparation or projected:

Results other than publications:

Over 900 projects have been filed by the Department since that time, and the records of these are filed in the office of the Assistant Secretary in a vertical file. The projects are indexed for the purpose of ready reference, and whenever anything comes up in connection with the work of a particular project the Secretary can secure the report and is enabled in a few minutes to ascertain the scope of the work and its status at that time. It is believed that this is the largest collection of projects ever made by any branch of the Government service. The scheme has been found to be of immense value to the Department. It insures that the object and plan of every project shall be clearly worked out by the project leader, with revisions by the administrative officers above him, and often by other technicians who are able to aid in properly formulating or perfecting the plan of work. This plan has the further value of recording all administrative acts and of keeping clearly in view the cost and the prospective cost in relation to the value of the work. It enables the administrative officers to learn periodically the leading facts about the work and the results from the many projects under way and holds those in immediate charge to a closer responsibility for expenditures. The plan also aids in avoiding duplication and in bringing about coordination and cooperation of work.

The CHAIRMAN. So that, as a matter of fact, the Secretary of Agriculture has his hand on the brake all the while?

a NOTE.—The sample projects herewith illustrate the use of this outline. In writing up the projects if it is desirable that the typewriter employ capitalization, indentation, etc., in conformity with this sample.

(Witness: Zappone.)

Mr. ZAPPONE. He has his hand on the brake all the while, and can send at any time and inquire into the status of any project then under way. This he does at times personally, and at other times through the Assistant Secretary.

The CHAIRMAN. He does not understand or expect that any projects are to be embarked upon without having pursued this course that you have described?

Mr. ZAPPONE. That has been the case since this order was issued, about a year and a half ago.

The CHAIRMAN. Prior to that time you did not have that system?

Mr. ZAPPONE. Prior to that time we had no such system, and I wish to say that I believe it is entirely original with the Department of Agriculture. If you visit the Department, this is one of the things that I would like you to examine. I want you to see the great mass of valuable information that we have collected, not only as to what the Department is doing to-day, but what it has had under way for the past year and a half.

The CHAIRMAN. So that since the adoption of this rule you can go to the records of the Department and ascertain in the official authority for every line of investigation or every project that has been embarked upon?

Mr. ZAPPONE. Yes, sir; you will have the report of the official in charge of that project as to the scope of it and as to what he is doing.

The CHAIRMAN. And in this office, where all those things are gathered together, you will see whether or not that is approved by the Secretary of Agriculture, and if not approved by him of course the project is not embarked upon?

Mr. ZAPPONE. I think that is right, Mr. Chairman. They must undoubtedly have his approval or else they would not have proceeded in the first place, and when they are first submitted to him in a tentative way he considers them. I do not know that the blank itself bears his approval—I see no place for that purpose. The Assistant Secretary is directly in charge of this work, and, if the committee desire, could come before you and touch upon that more fully.

Mr. SAMUEL. You term a certain report the "Littlefield Report." Will you please explain what occasioned that term and why it is employed?

Mr. ZAPPONE. Perhaps I am wrong in using the term at all. The report that I refer to is the Report on the Expenditures of the Department of Agriculture, which we have had under discussion here for some time. As Mr. Littlefield has been personally associated with it, I have drifted into the habit of calling it the "Littlefield Report."

Mr. SAMUEL. I see no objection to its being called the "Littlefield Report." I simply desired to bring out why you have termed it the "Littlefield Report."

Mr. ZAPPONE. That is the reason, Mr. Samuel, and as Mr. Littlefield is the author of this report in its present form and arrangement I feel that he should have the credit for it.

Mr. SAMUEL. What is the difference in the cost of the "Littlefield Report" and the previous report?

Mr. ZAPPONE. At the present time there is a difference of about \$5,000, and if your committee approve of having the report submitted in manuscript form the saving will be over \$6,000.

(Witness: Zappone.)

Mr. SAMUEL. That is \$6,000 less than the previous printed form?

Mr. ZAPPONE. Six thousand dollars less than the report cost two years ago, prior to the reclassification of the expenditures, as suggested by Mr. Littlefield.

The CHAIRMAN. In the course of our examinations of the heads of the various bureaus considerable apparent duplication of investigation has been disclosed, indicating that the work of one bureau may be overlapping that of another, or showing that different sets of scientists have been engaged in apparently the same line of investigation in relation to the same subject-matter. Has this ever been called to the attention of the Secretary of Agriculture, and has any effort been made to eliminate this condition so far as possible?

Mr. ZAPPONE. This subject was called to the attention of the Secretary when he assumed office, and it not only received his careful consideration at that time, but has also been kept prominently in mind by him ever since.

The duplication of work in the Department of Agriculture—that is, the overlapping of the work of one Bureau on that of another—was one of the hardest problems that the Secretary of Agriculture had to deal with when he assumed charge of the Department. It is believed that he has eliminated all such duplication or overlapping of work, so far as it is practicable to do so. There are investigations and experiments constantly being considered by the Department which are so closely related that they dovetail into one another, making it a difficult matter to draw the line of demarcation. A scientist will take up a certain line of work, prosecute the study for several months, and at the end of that time, probably before his work is half completed, discover that it overlaps slightly on work assigned to some other Bureau. At the time he may be in the field, and naturally the man does not stop his work to wait for another man to come and take it up from that point, but continues his investigations to the end and makes a report upon the entire subject. As stated, a few of the scientific investigations and experiments are so closely related that they must of necessity overlap one another, but there is no duplication of work; it simply means that one official in the Department instead of another may do the work. I will state, on the authority of the Secretary himself, that the greatest difficulty is not in duplication of work, but in securing the cooperation of one Bureau with another.

In the case of the nutrition work at Middletown, Conn., under Doctor Atwater, I will say that Doctor Atwater originated the work. The quarters occupied by the Government were furnished by the experiment station and occupied without expense. The experiment station also paid Doctor Atwater a salary while connected with that station, which was in addition to the amount received from the Department. Doctor Atwater is one of the most eminent physiological chemists in the world, but is now unhappily incapacitated by a paralytic stroke. He was succeeded by Professor Benedict, at \$1,800. Professor Benedict is also receiving \$2,500 from the college. This work appears to duplicate that of the Bureau of Chemistry, but Doctor True has explained that it is not a real duplication, as the Bureau of Chemistry is doing none of this work at the present time.

It seems proper to add that the Secretary has had under consideration for some time the matter of the transfer of this station from Middletown to Washington, together with the calorimeter, and it is also his purpose to recommend legislation which will ultimately transfer the work to the Bureau of Chemistry. The Office of Experiment Stations in carrying on these experiments was simply executing the wishes of Congress, as Congress had placed the appropriation under the control of that Office. The Department has done the principal part of the work at Middletown, because it could not pay enough to the man in charge to secure his entire time and bring him to Washington. The Carnegie people have just offered a large salary to Professor Benedict and he is about to leave us.

The Department is constantly making changes, usually minor changes, so as to avoid duplication. In some of the bureaus the work is constantly branching out into new lines and closing old projects, making necessary considerable changes every year. In case of other bureaus where the work remains more constantly along set lines, as with inspection work, the changes to avoid duplication are not so frequent. There is at all times an apparent minor amount of overlapping, as men and methods can not at once be shoved into position as can the pieces on a chessboard. Scientists who are discovering and inventing must be given assurance of continuity along their new lines, into which, perhaps, no one but themselves has a clear insight. And even they do not always have this at first, but have to grope in the dark for a time. To make too formal his relations to other officers often retards the scientist in devising ways and accumulating the methods and apparatus he needs and which suit his ideas of how to approach his problem. The more original genius the scientific worker has, as also the artist, the greater need there is of giving him freedom. The Secretary has built up the Department about problems rather than about methods, and the tendency is more and more to classify the work according to the objects to be attained, using for the solution of each problem whatever methods, whatever sciences, and whatever apparatus may be necessary.

Where it is, on the whole, economy in both cost of work and in results to assemble a given line of routine or even of new scientific work in one place or under one head, that is done as rapidly as the readjustments can reasonably be effected. The Department is new in that such an assemblage of scientific and related work was never before brought together in such a large organization. The complexity of administrative problems in the Department can be understood from the fact that it has about one hundred divisions, most of which are in the 10 bureaus, and that these divisions cooperate among themselves and also with the nearly 600 divisions in the more than 50 State experiment stations, and from the further fact that both the divisions of this Department and the divisions of the respective State experiment stations operate in agriculture in the same territory.

The control of all this machinery for the research, education, and police work which is delegated to the Department, although attended with minor difficulties, is being rapidly adjusted into a perfect system. While the results and the immediate means of securing them are con-

(Witness: Zappone.)

sidered first, much attention is also given to the gradual development and perfection of the organization.

The present popularity of the Department among scientists is such that many of them prefer to work here at lower salaries than they can command elsewhere. These men remain with us because of the special facilities afforded them in the pursuit of those investigations in which they are especially interested.

The CHAIRMAN. Have you any information as to the question of superannuation in the Departments of the Government, as bearing upon the efficiency of the service, and the conditions actually existing in that respect? If you have, I wish you would insert what you have on that line.

Mr. ZAPPONE. The term superannuation is very misleading, and hardly covers the old age of clerks. Some clerks who are 40 years of age are just as superannuated as some clerks 65 years of age. It depends entirely upon the physical and mental condition of the man in each case. The Civil Service Commission a short time ago prepared for the President a statement respecting the number and efficiency of employees over 65 years of age in the civil service at Washington. With their permission the statement in question is submitted herewith:

By direction of the President, the Civil Service Commission, on March 22, 1906, requested of the Departments information respecting the number and efficiency of employees in the civil service at Washington over 65 years of age. The last reply was received on May 7, 1906. The following summary of the more important facts disclosed by the data furnished was prepared and transmitted to the President May 28, 1906.

AGED EMPLOYEES IN DEPARTMENTS.

There are 1,626 employees over 65 years of age in the departmental service at Washington, of whom only 127, or less than 8 per cent, entered through examination under the civil-service rules. If 44 employees who owe their appointment to preference under section 1754, Revised Statutes (which practically made their examination non-competitive), be excluded, the number appointed through competitive examination is reduced to 83 and only 5.1 per cent of the total number owe their appointment to competitive examination.

According to their duties, the 1,626 employees under consideration may be arranged as follows:

Duties.	Veterans.	Civilians.
Executive.....	79	31
Professional, technical, and scientific.....	83	69
Clerical.....	438	329
Mechanical.....	90	121
Subclerical.....	228	93
Unclassified laborers.....	16	49
Total.....	934	692

(Witness: Zappone.)

Rating on quality and quantity of work of the 1,626 employees, ten-tenths representing the maximum quantity performed by a thoroughly efficient employee.

Rating on quality of work.	Rating in tenths on quantity of work.											Number rated.
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
Poor.....	8	2	4	5	13	39	4	5	4	3	3	90
Fair.....			1		8	53	60	72	39	9	9	251
Average.....				1	3	16	52	62	60	22	13	229
Good.....	1				5	14	42	90	222	182	126	682
Excellent.....	1					2	3	7	32	59	270	374
Total.....	10	2	5	6	29	124	161	236	357	275	421	1,626

Table showing by age groups the relative efficiency, average salaries, and salaries adjusted to efficiency of 1,601 employees over 65 years old whose salaries are known.

Age.	Number.	Quantity of work on basis of 100.	Average salary.	Salary adjusted to work performed.
65 to 70 years.....	948	81.7	\$1,253	\$1,024
70 to 75 years.....	435	78.4	1,220	956
75 years and over.....	218	72.1	1,166	841

Total salaries..... \$1,973,580.50
 Salaries adjusted to work on the basis of a thoroughly efficient employee..... 1,570,000.00

STATISTICS PERTAINING EXCLUSIVELY TO VETERANS.

On quantity of work the average for all employees over 65 years of age was 79.5; the average for veterans, 80.3. There are 579 veterans between 65 and 70; 253 between 70 and 75; and 102, 75 years of age or over.

Of the 934 veteran employees, 8 are rated at nothing on quantity of work, 1 at 0.1, 1 at 0.2, 3 at 0.3, 18 at 0.4, 58 at 0.5, 85 at 0.6, 140 at 0.7, 197 at 0.8, 170 at 0.9, and 253 at 1.0.

On the quality of work, of the 934 veterans 49 are rated as poor, 146 fair, 137 average, 369 good, and 233 excellent.

(Witness: Zappone.)

Employees in Washington over 65 years old, by age and Departments.

Age.	State.	Treas-ury.	War.	Navy.	Post-Office.	Interior.	Justice.	Agricul-ture.	Com-merce and Labor.
65 years...	1	14	41	4	12	66	1	9	16
66 years...	1	79	28	2	18	64		7	6
67 years...		54	21	4	17	49		9	11
68 years...	1	48	18	3	7	50		4	5
69 years...		43	26	1	5	34	2	7	5
70 years...	3	47	13		11	20	1	6	5
71 years...		40	17	1	3	26	1	1	6
72 years...		15	15	2	4	28	2	3	3
73 years...		30	7			18		4	1
74 years...		18	5	1	3	12	2	2	
75 years...		19	8	1	2	13		2	1
76 years...		11	4	1	2	11	1	3	3
77 years...		9	1		1	6			
78 years...		7	2	2	2	6			
79 years...		2	1			3	1	2	
80 years...	1	4		2	2	5		1	
81 years...		5	2			4			
82 years...		4	1	1		5			1
83 years...		2				2		1	
84 years...		1	1			3			
85 years...				1		2			
86 years...		2							
87 years...									
88 years...									
89 years...									
90 years...		-1							
91 years...		1							
Total.	7	455	211	26	89	427	11	61	63

Age.	Civil Service Commission.	Inter-state Commerce Commission.	Spanish Treaty Claims Commission.	State, War, and Navy Department building.	Government Printing Office.	Smithsonian Institution.	Male.	Female.	Total.
65 years...		1		3	67	1	204	32	236
66 years...		1		4	20	1	194	37	231
67 years...				2	15	2	161	23	184
68 years...				1	21	3	138	23	161
69 years...			1	1	23	1	124	25	149
70 years...		1			18		107	18	126
71 years...				3	7		91	14	105
72 years...				2	13		77	10	87
73 years...	1			3	8	2	62	12	74
74 years...		1		1	7		47	5	52
75 years...				1	3	1	47	4	51
76 years...				2	6		41	3	44
77 years...					5	1	20	3	23
78 years...		1			5		21	4	25
79 years...		1		1	4		13	2	15
80 years...					2	1	13	5	18
81 years...				3			14		14
82 years...							11	1	12
83 years...					1		6		6
84 years...							5		5
85 years...				1			4		4
86 years...					1		2	1	3
87 years...									
88 years...									
89 years...									
90 years...							1		1
91 years...								1	1
Total...	1	6	1	28	226	13	1,403	223	1,626

(Witness: Zappone.)

Employees in Washington over 65 years old, by ages and salary classes.

Age.	Less than \$720.	\$720 to \$839.	\$840 to \$899.	\$900 to \$999.	\$1,000 to \$1,199.	\$1,200 to \$1,399.
65 years.....	42	22	7	11	12	60
66 years.....	24	28	5	17	14	43
67 years.....	26	19	7	10	16	30
68 years.....	16	18	1	9	14	30
69 years.....	22	14	6	5	12	28
70 years.....	21	14	6	4	10	17
71 years.....	10	18	4	6	8	19
72 years.....	10	11	1	6	10	18
73 years.....	14	7	2	3	5	15
74 years.....	9	4	1	7	4	10
75 years.....	4	6	3	1	6	9
76 years.....	7	6	6	3	4	8
77 years.....	1	5	1	1	2	5
78 years.....	4	2	1	2	3	8
79 years.....	2	2	.....	1	3	5
80 years.....	4	3	.....	5	.....	3
81 years.....	.....	4	.....	.....	2	2
82 years.....	.....	.....	.....	6	1	1
83 years.....	1	.....	.....	.....	.....	2
84 years.....	.....	.....	1	1	1	.....
85 years.....	.....	2	.....	2	.....	.....
86 years.....	.....	.....	.....	.....	.....	2
87 years.....	.....	.....	.....	.....	.....	.....
88 years.....	.....	.....	.....	.....	.....	.....
89 years.....	.....	.....	.....	.....	1	.....
90 years.....	.....	.....	.....	.....	.....	.....
91 years.....	1	.....	.....	.....	.....	.....
Total.....	1,218	185	52	102	128	315

Age.	\$1,400 to \$1,599.	\$1,600 to \$1,799.	\$1,800 to \$1,999.	\$2,000 to \$2,499.	\$2,500 and over.	Total.
65 years.....	31	26	14	10	1	236
66 years.....	31	21	25	17	6	231
67 years.....	24	18	19	10	5	184
68 years.....	30	12	17	14	.....	161
69 years.....	15	14	17	12	4	149
70 years.....	18	12	12	7	4	125
71 years.....	12	11	12	3	2	105
72 years.....	10	4	10	5	2	87
73 years.....	8	11	6	1	2	74
74 years.....	5	3	5	3	1	52
75 years.....	5	8	3	5	1	51
76 years.....	3	1	2	3	1	44
77 years.....	3	3	1	1	.....	23
78 years.....	2	2	1	.....	.....	25
79 years.....	.....	.....	.....	.....	2	15
80 years.....	3	.....	.....	.....	.....	18
81 years.....	4	1	.....	.....	1	14
82 years.....	2	.....	1	1	.....	12
83 years.....	.....	.....	1	.....	.....	6
84 years.....	1	.....	1	.....	.....	5
85 years.....	.....	.....	.....	.....	4	4
86 years.....	1	.....	.....	.....	.....	3
87 years.....	.....	.....	.....	.....	.....	.....
88 years.....	.....	.....	.....	.....	.....	.....
89 years.....	.....	.....	.....	.....	.....	.....
90 years.....	.....	.....	.....	.....	.....	1
91 years.....	.....	.....	.....	.....	.....	1
Total.....	208	147	147	92	32	1,626

It also seems proper to add that the matter of superannuation or retirement of clerks is now being considered by a subcommittee of the Keep Committee, of which I am a member, and we hope to make a recommendation thereon within a few weeks.

(Witness: Zappone.)

Mr. SAMUEL. You have been present at all our hearings; have you anything that you wish to state that would bring out any facts, or possibly enlarge somewhat on the statements that have been made, in connection with certain of the bureaus and the general working of the Department?

Mr. ZAPPONE. I know of nothing, unless the committee would like to ask additional questions on any matter in regard to which they do not feel entirely satisfied.

On behalf of the Secretary of Agriculture I thank this committee and its chairman for the very thorough manner in which they have investigated the expenditures of the Department; and I also desire to voice the appreciation of our various officials who have appeared here for the fairness with which the hearings have been conducted and for the uniform courtesy we have been accorded.

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REPORT

OF THE

COMMITTEE ON EXPENDITURES IN THE DEPARTMENT OF AGRICULTURE,

HOUSE OF REPRESENTATIVES.

FIFTY-NINTH CONGRESS,
SECOND SESSION.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1907. •

EXPENDITURES IN THE DEPARTMENT OF AGRICULTURE.

MARCH 1, 1907.—Referred to the House Calendar.

MR. LITTLEFIELD, from the Committee on Expenditures in the Agricultural Department, submitted the following

REPORT.

The Committee on Expenditures in the Department of Agriculture beg leave to report as follows:

While the time at their disposal has been so short as to make it impossible for them to make an examination of the expenditures of the Department of Agriculture, within the scope of the rule giving them their authority, exhaustive and complete, we have made as thorough an examination as has been practicable under the circumstances. The printed list of expenditures that has been used for the purpose of examination came into the hands of the committee just after the Christmas holidays, and on January 5 the committee began its work.

The committee has held something like twenty sessions, some of which have occupied from 10 o'clock in the forenoon until 5.45 in the evening, with an intermission of half an hour for lunch. It has examined in all about seventy witnesses, all of whom have been examined on oath. A portion of the committee have spent the better part of two days, in addition to the time above mentioned, in a personal examination of the Department and its various bureaus, offices and divisions, and a great deal of additional time has been required in going back and forth between that and other Departments in getting together the data which will be found in the testimony printed.

The numbers which will be found in parentheses throughout this report refer to the various pages of the hearings. The hearings have a very concise index on the last three pages, and, in addition, for convenience of reference, the subject treated in the hearings and the witnesses testifying on those subjects will be found at the head of each page throughout the hearings; so that the subjects and the witnesses testifying relative thereto can be easily ascertained by turning the pages of the hearings.

PRINTED LIST OF EXPENDITURES.

The first thing that occupied the attention of the committee was the manner in which the list of expenditures has been heretofore prepared, printed, and distributed. We found that since and including the Forty-ninth Congress the lists of the expenditures of the Department of Agriculture have been regularly furnished and printed as a public document, 1,875 in number, although practically no call has ever been made for the document, and it is of substantially no public value, the Department of Agriculture usually taking a few copies, and some 595 copies having heretofore been bound in law sheep for distribution to depositories, foreign exchanges, and libraries. For this purpose, beginning with the Forty-ninth Congress and finishing with the Fifty-ninth, the sum of \$31,175.75 has been expended by the United States Government without, in our judgment, being of any substantial value.

The list, as it has been heretofore furnished, was of practically no use. House Document No. 448, Fifty-ninth Congress, first session, cost to print and bind \$5,306. It was simply a transcript of the cash book of the Agricultural Department and was a mass of unclassified, unrelated, heterogeneous figures. It was no doubt a literal compliance with the law requiring the list of expenditures to be filed, although the law was apparently drawn by some one who perhaps knew what he wanted, but did not appear to be able to express it in legislative language. This mass of unrelated and unclassified material composed a volume of 584 printed pages. It was worthless as a basis for investigation.

At the beginning of the session, and before the holidays, we required the Department to furnish us with a classified, analyzed, and condensed statement of expenditures, which was promptly done in a volume of 294 printed pages. That volume we have used as a basis of our investigation. That cost only \$2,153.47, resulting in a saving in this one instance in printing of \$3,152.49.

Having prosecuted an investigation to quite an extent in detail we do not think that the publication of a similar list of expenditures for the next fiscal year is necessary, and we have therefore instructed the Department to furnish us with not more than twelve typewritten copies of a similar classified, analyzed, and condensed list of expenditures, which we find can be done, so far as the typewriting is concerned, for about \$100, which includes the cost of a duplicating machine, resulting in a saving to the Government in this one item, as compared with the list heretofore furnished, of \$5,206 per annum.

PRINTING AND BINDING.

In the course of our investigations in connection with the list of expenditures to which we have already referred, we discovered that there was on hand in the Printing Office and in the folding room a large mass of practically worthless material; that under the charge of the Printing Office aggregates about 4,000,000 volumes (22), and that in the folding room substantially 2,000,000 volumes (46). We found that it was costing the Government to store this material

under the charge of the Printing Office about \$10,000 a year for storage alone during the last three years.

In addition to storage it appeared that six laborers, at \$626 each, aggregating \$3,756 a year, were employed in the Printing Office in simply handling over this immense aggregation of 4,000,000 volumes, showing a cost to the Government for storage and handling every year in connection with this accumulation of \$13,750 (34).

An interesting fact illustrative of the gross negligence connected with such an accumulation appeared when we discovered that since 1890 the Government had been paying \$3,000 a year for the storage of a lot of census reports which were accumulated at that time, and had been held under the Census Office on storage, on account of the fact that they were absolutely worthless and could not be distributed, these now being covered into the accumulation in charge of the Printing Office, but it has cost the Government \$48,000 simply for storage alone in order to keep on hand this material that has been worthless from the beginning (32).

We found that the requirement of the law compelling public documents to be bound in law sheep was costing, in accordance with the estimate of one of the witnesses, over and above what it would have cost to have bound them in cloth (which, we learn, is for all purposes of durability and use much better than law sheep), the sum of \$150,000 annually. (Ashion, 67.) And according to another witness (Post) \$188,634.86 annually, thus showing an entirely unnecessary and useless expenditure of anywhere from \$150,000 to \$188,634.86 annually.

There can be no question but that the law should be so changed as to eliminate this unnecessary expense, and that particular provision should be made for the sale of all the useless accumulations for old paper, for which it is estimated that they would bring something like \$30,000 to \$40,000, and in addition save the annual rental cost of storing them. It should be stated here that the cost of storing the accumulation in the folding room is \$5,000 annually.

We examined this subject with a great deal more of detail, but soon learned that the Printing Commission, composed of the Printing Committees of the House and Senate, had been for some considerable time making a thorough and exhaustive examination of the whole question. We learned that they had, so far as they could within the limits of existing legislation, reduced the number of documents printed so that the annual saving up to date has been substantially \$1,000,000, and that they have in mind the recommending of legislation for the proper disposition of the surplus and the preventing of such useless and unjustifiable accumulation, and taking care of the question of binding so far as to get the maximum of economy in expenditure in connection therewith.

Inasmuch as they have the matter fully in hand and are moving in it as rapidly as practicable under the circumstances, taking into account the involved, intricate, and complex character of the subject-matter with which they are dealing, and have already produced and are producing such effective and desirable results, we do not deem it necessary to make any specific recommendations with reference thereto.

MOUNT WEATHER.

The facts with regard to the original construction of the Mount Weather research observatory of the Weather Bureau of the United States Department of Agriculture, from the testimony introduced before the Committee on Expenditures in the Department of Agriculture, are substantially as follows:

The first purchase of ground was made September 22, 1902. The contract for an ordinary weather station—the same character of a station as up to that time had been frequently constructed at other places—was let December 20, 1902, and a little work was done in excavating during the winter of 1903. The purchase of ground and the erection of buildings were authorized by the appropriation bill that became effective July 1, 1902, which provided for the erection of not less than six buildings and made no provision as to where they were to go, the law leaving the location to the discretion of the Secretary of Agriculture.

Mount Weather was not specifically mentioned in the bill; neither were any of the other places mentioned at which buildings were located, the intention of the Committee on Agriculture apparently having been to leave this entirely to the discretion of the executive officer having control of the appropriation. This procedure has been followed since in the appropriations for the support of the Weather Bureau in all matters pertaining to the erection of Weather Bureau buildings, as well as in the creation of additional Weather Bureau stations that are located in buildings not owned by the Government. In fact, the Weather Bureau, with its over 190 full observation stations and its 50 buildings, has largely developed under laws that have left the matter of the location and the amount to be expended at each place largely or entirely to the discretion of the Secretary of Agriculture and the Chief of the Weather Bureau.

The appropriation act under which Mount Weather was begun and which was contained in the bill that became operative July 1, 1902, reads as follows:

For the purchase of sites and the erection of not less than six buildings for use as Weather Bureau observatories and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstaves, and storm-warning signal towers to properly equip these stations, fifty thousand dollars.

It does not appear to the committee that the Secretary of Agriculture was, under this act, limited to the construction of but one building on a given Weather Bureau site. We are therefore of the opinion that in adding one or more buildings each year to the Weather Bureau building at the Mount Weather observatory station he was acting fully within the discretionary power vested in him by the act of Congress.

The amount used to construct the first building at Mount Weather was not diverted from some other appropriation that was by law specifically made to erect a building at some other place. In other words, there was never a specific appropriation for the building at Yellowstone Park, and therefore the money was not diverted by the Secretary of Agriculture from Yellowstone Park to Mount Weather. Yellowstone Park and Mount Weather were both created under the authority of the Secretary of Agriculture to put buildings wherever he might see fit, the first order of the Secretary to the Chief of the Weather Bureau to erect a building at Yellowstone Park being countermanded and directions given to begin at Mount Weather instead. The following year the Secretary directed that a building be erected at Yellowstone Park, which was done by the Chief of the Weather Bureau.

The committee desires to make this clear, as there has been some conflicting testimony in regard to the manner in which the first money was applied to the erection of a building at Mount Weather. In the spring of 1903, at a time when but little work had yet been done in the erection of an ordinary weather station at Mount Weather, the Chief of the Weather Bureau seems to have formulated completely in his mind the idea of enlarging that station into a research institution. He talked the matter over with the Secretary of Agriculture, and they decided that the first thing to do was to write out the scheme and lay it before the Committee on Agriculture. This is precisely what he did. As may be seen from his annual report for 1903, dated August 11, 1903, he outlined the whole scheme, and by letter of December 18, 1903, specifically called the attention of the chairman of the Agricultural Appropriations Committee of the House and also of each member of the committee to his report and asked that they please read it before he came before them.

When he went before the committee, the published hearings were taken up entirely with a discussion of the flood system of the Weather Bureau, the rearrangement of salaries, and some other incidental matters, so that when he came to that feature of his report that dealt with Mount Weather he found himself before the subcommittee and not before the full committee. The hearings of the subcommittee were not reported. This is the reason that he gives as to why no discussion of Mount Weather is found in the published hearing during the winter of 1903. These matters were arranged by the chairman of the committee. The Chief of the Weather Bureau states that he mailed his annual report to the subcommittee and outlined to them in a general talk the plan to be pursued in the building of Mount Weather.

Representative Burleson, who was a member of the committee, in his testimony says that he remembers that Mr. Moore discussed these matters with the committee and especially with Chairman Wadsworth. He remembers the chairman spoke of the fact that the Department had a wide authority in the expenditure of the money, and suggested that it might be advisable to put on the brakes. But after this discussion the appropriation bill was written so as to continue precisely the same authority that existed in the previous appropriation bill.

No criticism by any member of the Appropriation Committee seems to have appeared in any of the hearings, whether published or other-

wise, as to the authority under which the Secretary of Agriculture was working. It is apparent that if Mount Weather was being created it must be created from the fund for the erection of buildings. We are of the opinion that, as each successive report of the Chief of the Weather Bureau to the Secretary of Agriculture described what was being done at Mount Weather and what was proposed for the following year, the failure of Congress to make any change in the law under which they were working gave them every reason to feel that they were working with the full knowledge and consent of Congress, and that their authority was ample.

The first criticism made by any member of the Agricultural Committee on the action of the Secretary of Agriculture and the Chief of the Weather Bureau in gradually creating Mount Weather out of funds at their disposal seems to have been made when the chairman of the Appropriation Committee appeared before this committee. Even then the chairman of the Agricultural Committee was of the opinion that the authority under which the Secretary was working was ample.

Each year, as will be seen by the reports of the Bureau, the full history was written of what had been done during the past year at Mount Weather, and what it was proposed to do in the following year. In the report dated October 4, 1904, will be found a full description of the Mount Weather meteorological research observatory, including the lines of proposed investigation and the buildings completed and projected.

As previously stated, the annual report for 1903 had also thoroughly outlined the plan of the institution. After this publication the authority of Congress for the work was continued the same as before. This procedure continued until the winter of 1906, when the Chief of the Weather Bureau appeared before the Agricultural Committee. There had been in the summer of 1905 some newspaper criticism of Mount Weather to the effect that it had been started without proper authority of law, so that the question of the legality of this work first came up in the newspapers in the summer of 1905.

The chairman of the Agricultural Committee asked the chief of the Bureau, for the benefit of the committee, to give the entire history of the institution, and the published hearings of the winter of 1906 gave such history. After this hearing, which was before the full committee, and which was printed in full, no criticism was made as to the authority of the Secretary under whom the Chief of the Weather Bureau was working, and the law for the continuation of the work was renewed, except that the authority was enlarged by changing the words "not less than five buildings" to read "not to exceed five buildings," thus leaving it discretionary with the Secretary to erect two buildings or three buildings, or any number, so long as he did not exceed five buildings. This was an enlargement of the discretionary power vested in the Secretary.

Even as late as the winter of 1907 the House committee renewed the authority under which the previous work on Mount Weather had been done precisely as it had existed the year before; and in all this time there does not appear to have been a word of criticism or any intimation to the Secretary of Agriculture or the Chief of the Weather Bureau that they were not proceeding in accordance with law, or that it was not intended that they should proceed in such manner. It

appears to us, therefore, that they were fully justified in assuming that they had law, precedent, and the opinion of Congress sustaining them in everything that they were doing.

The accounts were passed by the experts of the Treasury Department, and one of the latter has appeared and testified to the fact that in his judgment the expenditures were legally made; that the Secretary of Agriculture was exercising his functions as Congress had delegated them to him in deciding that he would put one or two of these buildings at Mount Weather each year, gradually creating a scientific experimental station to deal with the problems of the air, just as under the general authority he expended money for the support and development of the Weather Bureau; that he authorizes the Chief of the Weather Bureau each year to create here and there additional observation stations, although there is not a word in the bill that authorizes him to specifically create any one of these new stations.

That Congress intended to give a broad, general authority to the Secretary of Agriculture in regard to expenditures for the development and growth of the Weather Bureau is indicated by the following words that appear under "General Expenses, Weather Bureau:"

Every expenditure requisite for and incident to the establishment, equipment, and maintenance of meteorological observation stations in the United States, in the West Indies or on adjacent coasts, in the Hawaiian Islands, and in Bermuda, etc.

The discretion as to where the stations are to be located is left with the Secretary of Agriculture. All the law and precedents seem to us, therefore, to fully justify the Secretary of Agriculture in everything that he has done in regard to the establishment of Weather Bureau stations and in regard to the erection of buildings for the accommodation of such stations as needed buildings—whether one or more.

Furthermore, it is found that the general expense fund of the Weather Bureau for the year ending July 1, 1907, provides that the Secretary of Agriculture may construct not to exceed four Weather Bureau buildings in addition to the five that are authorized under the portion of the bill heretofore quoted. Nothing is said as to their location or as to the amount of money that shall be expended on each one. Neither the Secretary of Agriculture nor the Chief of the Weather Bureau can fairly be criticised for exercising a function that is vested in them by the Congress.

We are of the opinion that with so much money being annually spent in the making of forecasts and storm warnings, which everyone agrees have a great value to the various industries of the country, it is a wise economy to devote a reasonable amount of money to the carrying on of experimentation at one of the many stations of the Weather Bureau, so that the science that is back of the art of forecasting may be improved, and that thereby the annual expenditures for the support of the Weather Bureau may have a greater value to the people. We find no evidence of extravagance or misapplication of funds in the creation of the institution at Mount Weather, which we believe to have been worthily conceived and the plans so far to have been efficiently executed.

WIRELESS TELEGRAPHY.

On the 9th day of January, 1900, the Secretary of Agriculture made a contract with Reginald A. Fessenden, by virtue of which, in consideration of a salary of \$3,000 per annum to be paid said Fessenden, and the employment, if necessary, of some person to be named by him at a salary of \$1,200, and the purchase of such apparatus, supplies, etc., as might be considered necessary, and the detail for one year of two of the employees of the Weather Bureau to assist in conducting experiments, without expense to Fessenden, whatever inventions were made by the said Fessenden or that had been made by him applying to the wireless transmission of electric signals should be immediately patented by him at his expense and the right to use said inventions given to the Weather Bureau, Department of Agriculture, for transmission over land and sea of official messages, without charge, except for the apparatus at actual cost of manufacture; the Weather Bureau being further empowered to manufacture the apparatus for its own use if so desired, and said Fessenden reserving all other commercial rights and privileges accruing from said invention.

At this time there was no appropriation authorizing any expenditure for this purpose or any other legal authority therefor. No appropriations for experimentation for wireless telegraphy were made in either 1900 or 1901. In 1902, 1903, and 1904 appropriations were made for that purpose. In 1900 and 1901 there was expended for that purpose \$15,381.80. In connection with that expenditure, an item of \$108 for an electric make-and-break machine came to the notice of the Comptroller, and, having examined it, he held that there was no authority to purchase it for experimental purposes, but inasmuch as he had been advised that since its purchase it had been transferred to a seacoast telegraph station, and was then being used as a part of the outfit of the same, the amount of said purchase would not be disallowed "in this revision upon my own motion," clearly holding it to be an unauthorized expenditure if made for experimentation in wireless telegraphy, unless they are to be used as a part of the outfit in the operation, maintenance, and repair of the seacoast telegraph lines that the Government is authorized to operate and maintain.

Inasmuch as \$15,381.80 of the same kind of expenditure had been approved and allowed, we felt it our duty to call the attention of the Comptroller to that fact and ascertain why it was that these sums were allowed when it was clearly the opinion of the Comptroller that they were unauthorized by law. And we here quote his opinion in answer to our inquiries:

TREASURY DEPARTMENT,
Washington, February 15, 1907.

HON. CHARLES E. LITTLEFIELD,

*Chairman Committee on Expenditures, Department of Agriculture,
House of Representatives.*

MY DEAR SIR: I am in receipt of your letter dated the 13th instant, in which you request my opinion as to the legality of certain expenditures made by the Department of Agriculture for experimentation in wireless telegraphy during the fiscal years 1900 and 1901, and also as to the expenditures during the fiscal years 1902, 1903, 1904, 1905, and 1906 on what is called the Research Institution at Mount Weather.

You say as to the first proposition:

"In investigating the matters of expenditures of the Department of Agriculture in

the Weather Bureau, I have been examining their expenditures incurred in wireless telegraphy work and I find that they expended during the—

Fiscal year 1900.....	\$4, 146. 66
Fiscal year 1901.....	11, 235. 14
Fiscal year 1902.....	12, 576. 29
Fiscal year 1903.....	4, 650. 28
Fiscal year 1904.....	5, 744. 77

making an aggregate of..... 38, 353. 14

It appears that in the appropriation bills beginning with the year 1902 provision was made for experiments in wireless telegraphy. I have submitted to you the appropriation bills prior to that time for your examination. Among the papers transmitted to me I have received a decision made by you upon an item of \$108 for an electric make-and-break machine, which would have been disallowed by you on the assumption that it was used for experimenting in wireless telegraphy, but was allowed upon the statement that it was used in connection with the seacoast telegraph line.

“During the years 1900 and 1901 \$15,381.80 was expended in experimentation in wireless telegraphy.

“I would be glad to have you state—

“(1) Why it was that these sums of \$15,381.80 that were expended for experimental work in wireless telegraphy were not disallowed, as they apparently should have been in accordance with your opinion in connection with the \$108 item?

“(2) Whether or not, in your opinion, the contract that appears to have been made by the Secretary of Agriculture with Mr. Reginald A. Fessenden was authorized by law?

“(3) Whether the sums which appear to have been disbursed in the fiscal years 1900 and 1901 for wireless-telegraphy work under the contract made by the Department of Agriculture with Mr. Fessenden and the letter of the Secretary to the Chief of the Weather Bureau were authorized by law and should have been paid?”

The appropriations under which the expenditure of \$15,381.80 set out in your letter could only have been made are those for the years 1900 and 1901, and which read—

“GENERAL EXPENSES, WEATHER BUREAU: General expenses of the Weather Bureau, under the direction of the Secretary of Agriculture, for the benefit of agriculture, commerce, navigation, and other interests, as provided by law, namely:

* * * * *

“All other expenses, itemized as follows: Maps, bulletins, stationery, and scientific and other publications for stations; and the maintenance of a printing office in the District of Columbia for printing the necessary circulars, weather maps, bulletins, and the monthly weather reviews (including the hire of printers, lithographers, and other necessary working force); for traveling expenses, for freight and express charges; for instruments and shelters therefor; for telegraphing or telephoning reports and messages, the rates to be fixed by the Secretary of Agriculture by agreement with the companies performing the services; for rents and other incidental expenses of offices maintained as stations of observation; for maintenance and repair of seacoast telegraph lines; for river observations and reports; for storm and other signals; for cotton-region observations and reports; for corn and wheat observations and reports; for aerial observations and reports; for special observations and pay of observers of West Indian, Mexican, and Central American stations during the hurricane season; for supplies for climate and crop services, and for investigations on climatology, including assistance and all necessary expenses, three hundred and eighty-five thousand nine hundred and sixty-seven dollars.” (For fiscal year 1900.)

“GENERAL EXPENSES, WEATHER BUREAU.—General expenses of the Weather Bureau, under the direction of the Secretary of Agriculture, for the benefit of agriculture, commerce, navigation, and other interests, as provided by law, namely:

* * * * *

“All other expenses, itemized as follows: Maps, bulletins, stationery, and scientific and other publications for stations; and the maintenance of a printing office in the District of Columbia for printing the necessary circulars, weather maps, bulletins, and monthly weather reviews (including the hire of printers, lithographers, and other necessary working force); for traveling expenses; for freight and express charges; for instruments and shelters therefor; for telegraphing or telephoning reports and messages, the rates to be fixed by the Secretary of Agriculture, by agreement with the companies performing the services; for rents and other incidental expenses of offices maintained as sta-

tions of observation; for maintenance and repair of seacoast telegraph lines; for river observations and reports; for storm and other signals; for cotton-region observations and reports; for corn and wheat observations and reports; for aerial observations and reports; for supplies for climate and crop services, and for investigations on climatology, including assistance and all necessary expenses, four hundred and thirty-nine thousand five hundred dollars." (For fiscal year 1901.)

In answer to your first question I have the honor to say that on January 9, 1901, I rendered a decision which had its foundation in the revision of the accounts of Frank L. Evans, disbursing clerk of the Department of Agriculture, wherein I held that the appropriation for "General expenses, Weather Bureau," for the fiscal year 1900 could not be used to pay the expenses incurred in experimentation in wireless telegraphy. This decision was, no doubt, under the rules of my office, at once forwarded to the office of the Auditor for the State and other Departments, who settles the accounts arising in the Agricultural Department. Why the Auditor passed accounts after the date of said decision containing items of expense for experimental work in wireless telegraphy until such expenses were appropriated for in the appropriation act for the fiscal year 1902 I am unable to state. It was his duty to apply the decisions of the Comptroller to the settlement of such accounts.

The contract referred to in your second question with Reginald A. Fessenden, while most general in its terms, seems to contemplate an employment of Mr. Fessenden and an agreement to pay him at the rate of \$3,000 per year for his services in experimental work in wireless telegraphy for the Weather Bureau, and was, in my judgment, not authorized by law, for the reason that the Secretary of Agriculture at the date of such contract was not authorized to incur expenses for experimentation in wireless telegraphy.

It follows from my answers to questions (1) and (2) that I am constrained to answer the third question also in the negative.

We concur with the Comptroller in the opinion that the original contract with Mr. Fessenden was unauthorized by law, and is therefore void, and in the further opinion that the sums expended in 1900 and 1901, \$15,381.80, were unlawfully expended.

In answer to our inquiry as to why the large sums were allowed and paid, he states that it was the duty of the Auditor to apply his decisions to the settlement of such accounts, and says that:

Why the Auditor passed accounts after the date of said decision containing items of expense for experimental work in wireless telegraphy until such expenses were appropriated for in the appropriation act for the fiscal year 1902. I am unable to state.

And he says that his decision was, "no doubt, under the rules of my office, forwarded to the office of the Auditor for the State and other Departments, who settles the accounts arising in the Agricultural Department." (1140.)

We did not examine this Department for the purpose of ascertaining why these accounts were allowed, and we repeat with reference to these items what we have already said in connection with the allowance of the accounts of the Weather Bureau in developing the "research institution" at Mount Weather, that if the system that exists in this office is such as makes such allowances possible, the system ought to be changed, and if the system that they have is adequate, that then there should be a more vigorous and energetic administration of the system, as a very ordinary investigation would readily have disclosed the fact that these payments in 1900 and 1901 were not authorized by law.

We have examined the assignments made by Mr. Fessenden to the Weather Bureau under this contract with the Secretary of Agriculture and the statement of patents taken out by Mr. Fessenden and abstracts of title in relation thereto, furnished us by the Patent Office, for the purpose of ascertaining whether or not the Weather Bureau

now owns or holds any rights of any value developed under this contract.

The first assignment made by Mr. Fessenden (1134) assigns 10 applications not designated, but which have been identified by the Patent Office. They are assigned "for the purpose of transmission over land and sea of official messages of said United States Weather Bureau, but *for no other purpose.*"

The only other assignment to the Weather Bureau is one bearing date June 2, 1904, which is also an assignment "for the purpose of transmission over land and sea of official messages of said United States Weather Bureau, Department of Agriculture, but *for no other purpose.*" (1135.)

After the expenditure of \$38,353.14 by the Weather Bureau in wireless telegraphy experimentation, that subject was transferred to the Navy Department. (1132 and 1151.)

We learn from the Navy Department that the liquid barreter patent, No. 12115, dated May 26, 1903, which is a reissue of No. 727331, dated August 12, 1902, is the only patent taken out by Mr. Fessenden that has any substantial value. That patent, as we understand it, is now being used by the Navy Department. Mr. Fessenden claims that it infringes his patents, and demands damages of the Navy Department in the sum of \$1,000,000.

As we understand it, the Navy Department claim that they have been subrogated, by the transfer of wireless telegraphy to that Department from the Weather Bureau, to the rights of the Weather Bureau. Whether, under assignments to the Weather Bureau for the transmission of the official messages of the Weather Bureau "*but for no other purpose,*" such transfer results in a subrogation of the Navy Department to the rights of the Weather Bureau, we have no occasion to express any opinion.

On an examination, however, of the abstract furnished us by the Patent Office, we find that the only patent of any value, the liquid barreter patent, No. 12115, dated May 26, 1903, was transferred by Reginald A. Fessenden and Darwin S. Wolcott to the National Electric Signaling Company (one undivided third having, on the same day, been transferred by Fessenden to Wolcott), they transferring their entire right, title, and interest in said improvements and inventions set out in said letters patent, etc. (1147, 1148, 1149.)

This assignment was recorded January 16, 1904, or about six months before the assignment of the same patent by Fessenden to the Weather Bureau. Unless the recording of the original agreement on March 8, 1902, affects a subsequent purchaser with constructive notice of its provisions (and we have not found any statute which authorizes the recording of an agreement to convey a patent, and in the absence of such a statute it is at least an open question as to whether the recording of such an agreement is constructive notice to a subsequent purchaser in good faith), the Department acquired no title. This is an important legal question. We have not had time to examine the authorities, and therefore express no opinion thereon. So far as the abstract shows, however, independent of that question, neither the Weather Bureau nor the Navy Department has any right to use the only patent invented by Fessenden of any value, as at the time he made his assignment to the Weather Bureau he had no title thereto. So that we have, in brief, an expenditure of \$38,353.14 by the Weather Bureau for experiments in wireless telegraph-

raphy, with no title upon the part of the Bureau to the only patent developed of any value, and a claim against the Navy Department of \$1,000,000 by reason of its use thereof.

Independent of the question of there being no lawful authority for the making of the contract with Mr. Fessenden, we do not approve of the contract by virtue of which, at the expense of the Government when employed for the express purpose of experimenting, the inventions thus developed were to be assigned only for the use of the Weather Bureau, and the balance of the patents to be held by the inventor. Although it may have been heretofore the practice of the various Departments of the Government to thus acquire patents invented at the expense of the Government for the use of their several and respective Departments only, to the exclusion of other Departments of the Government, we think such a practice indefensible and reprehensible, and our opinion is that patents thus developed should be dedicated to the use of the public without charge.

We are very glad to know that the Secretary of the Department of Agriculture is in entire harmony with these views. On the 8th of May, 1905, he issued an express order to the employees of his Department, in which they were advised that patents procured under such circumstances would be taken out in the name of the inventor without any expense to him, and would allow to any citizens of the United States the use of the patented article without payments of royalty, and expressly prohibited employees from patenting any device or process or discovery connected with the work of the Department, except in the manner above described. We heartily approve of this order and believe that it is the policy that should be insisted upon in connection with all the departments of the Government, which should follow the example of Secretary Wilson in this respect if they have not adopted a like policy.

GUTTA-PERCHA CABLES.

Complaint was made to us that the Weather Bureau was not justified in selecting for its use gutta-percha cables. We examined all parties who had anything to present upon that subject, and while we think it is true that gutta-percha is more expensive than covering of other kinds, it is also true that there is a very substantial difference of opinion upon the question of its durability and utility. Taking into account its construction, the length of time such cables have lasted and rendered good service, together with the difference in cost, our judgment is that the Bureau is subject to no criticism for having selected gutta-percha cables for its use.

In connection with the purchase and laying of cables complaint was made that advertisements were issued in such manner for that work that it practically eliminated the men who did the laying from becoming parties to the bidding, the advertisement being made on the basis of the cables made and laid, it appearing that the making and laying were practically two distinct kinds of business and carried on by separate and distinct concerns. At our suggestion the Bureau has cheerfully agreed to adopt a method of advertising that will submit the propositions in the alternative, so that all parties who may be interested can have an opportunity to bid for the work in whole or in part and the most economical results for the Government can be obtained.

FOREST RESERVES.

This Service is supported by two funds, both of which are appropriated by Congress, one being directly annually appropriated and the other being appropriated by a provision of law by virtue of which the collections received by the Service from the sales of timber, leasing grazing privileges, and other rights and privileges connected with the use of water in the development of power are appropriated for the uses of the Forest Service. The total appropriations for the Forest Service, including both of these items, for the fiscal year 1906 was \$1,193,015.48. Of this sum \$767,219.96 was collected by the Service for the use of the reserves (846). When the forest reserves were transferred to the Department of Agriculture something like two years ago the income from the reserves during the previous fiscal year was less than \$60,000. The income for the first full year under the charge of the Bureau of Forestry from the same sources has been \$767,219.96, showing an increase under the care of the Forest Service in the Department of Agriculture of over \$700,000.

For the next fiscal year the appropriation asked for is \$900,000, and the income is estimated about one and a quarter million dollars, and the expenses of the services are estimated at \$1,800,000 (791, 792). The Forester has promised the Committee on Agriculture that in five years from the date of the transfer his service will be self-sustaining, and the experience of his department up to date fully justifies his confidence in being able to carry out that promise (792).

While the sum collected from the reserves is deposited in the Treasury of the United States and checked out under authority of a statute appropriating the sums thus collected for the use of the Forest Service, and therefore not formally appearing in the appropriation bills, it is a fact that those sums are treated in precisely the same way, so far as their disbursement is concerned and the purposes for which they are used, as are the specific appropriations annually made by Congress in the Agricultural appropriation bill (830).

We have examined the method of handling this fund, which has been termed in some quarters an "irresponsible fund," with very great care, and our judgment is that it is surrounded by ample business restrictions conservative in their nature and admirably calculated to adequately protect the interests of the Government in the collection and disbursement of the fund. The only additional check that we could see any occasion for suggesting was the furnishing of a duplicate certificate of deposit every day by the Treasury Department to the Chief Forester or to the disbursing clerk of the Department of Agriculture showing the amount deposited daily by the fiscal agent of the Forest Service. Under the methods now in practice the amounts received by the fiscal agent every twenty-four hours are certified to two other officials connected with the Department, and with this additional certificate from the Treasury Department three officials who are acting entirely independently of the fiscal agent will be able to check up every twenty-four hours every dollar collected by the fiscal agent. Our recommendation that this additional check be adopted has been promptly accepted by the Forester and will be at once introduced.

The disbursing clerk of the Department of Agriculture, who has on hand, subject to check, from \$300,000 to \$500,000 at a time, and not

infrequently has on hand in cash from \$70,000 to \$75,000 a day (831, 832, 834), gives a bond of \$50,000.

The balance, subject to check by the fiscal agent of the Forest Service, resulting from this fund, fluctuates between \$30,000 and \$70,000. (829). After the check which we have suggested has been introduced it will not be possible for the fiscal agent to have on hand as result of collections more than from \$30,000 to \$40,000 at any one time. Notwithstanding the fact that his responsibility is very much less than that of the disbursing clerk of the Department of Agriculture (and we may say that this clerk's bond is as large as any bond given by any of the disbursing clerks in any of the other Departments, some of whom handle fully as much and perhaps larger sums of money), the fiscal agent of the Forest Service is required on the recommendation of the Forester to give a bond in the sum of \$50,000. If the size of his bond is to be based upon the responsibilities and hazards against which the Government is protected, this bond is evidently considerably larger than that required to be given by the disbursing clerk of the Department of Agriculture, and in this respect certainly the Forester has exercised a very commendable degree of conservatism.

Before our hearings were concluded, this service became the subject of criticism upon the part of Members of the United States Senate. The alleged irresponsible character of this fund was referred to. Your committee immediately called the attention of the gentlemen making the criticisms to the fact that our hearings were not concluded and that we would have the Forester or anyone else connected with the Department before our committee, where they could be examined and cross-examined on oath for the purpose of developing all facts that might relate to the efficiency of the Department, the character of its organization, the propriety of its conduct, or the wisdom of its expenditure. None of the gentlemen desired to be present and cross-examine the officials of the Department.

Senator Heyburn submitted to the committee a list of 17 questions, which we herewith quote:

1. How much land have you included in forest reserves upon which there is no merchantable timber?
2. How much land have you included in forest reserves valuable principally for grazing?
3. How much land have you included in forest reserves mineral in character?
4. How many homestead entries have you included in forest reserves?
5. How many public schools have you included in forest reserves?
6. How many post-offices have you included in forest reserves?
7. How much acreage of grazing lands have you granted permits for grazing stock upon?
8. How many head of stock have you granted permits to graze upon per acre—giving the character of stock?
9. How many acres of forest reserve have been withdrawn in each State and Territory, and what percentage of the total area of such State and Territory is forest reserve?
10. How much timber in quantity, and value realized, has been sold by the Government from each reserve—given by State, reserve, and county?
11. How much money has been realized from the grazing permits upon each reserve?
12. How much money is now in the special fund resulting from sale of timber and grazing, stated separately?
13. How many men are now employed in each department of the forestry service? State in detail and give full list, and compensation paid each man, by class?
14. State in detail amounts paid out of special fund and for what purpose paid.
15. State fully the permits issued for grazing upon forest reserves, giving the names and extent of the permit.

16. State fully the quantity of land surrendered in each forest reserve, and by whom surrendered, for which lieu right of selection has been allowed, and to what extent such lieu selections have been made. State by whom such right to select lieu lands has been exercised, and where such lands have been selected. State what part of land surrendered as base for lieu selection has been merchantable timber land, what part has been grazing land, what part has been arid land, and upon what character of land the right of lieu selection has been exercised, and where.

17. State the quantity of land represented by sections 16 and 36 included in forest reserves in each State and Territory.

It will be seen that they all relate to the policy of the law and do not in any way reflect upon or suggest any criticism or give information in relation to any facts that would furnish the foundation for an examination of the Department in the line of the manner in which its business is conducted from an administrative and executive standpoint or as affecting its honesty or efficiency.

We proceeded to examine carefully the Forester on Saturday, February 16, using Senator Heyburn's memoranda as a basis of the examination, propounding during the course of the examination all of his questions and such others as occurred to us as calculated to develop any additional information. We were unable to elicit anything that in any way reflected upon the manner in which the affairs of this Bureau had been conducted.

Later, noticing that Senator Heyburn made on Tuesday, February 19, the following statement in a speech in the Senate—

If I am accurately informed—and I believe I am—a number of these forest rangers and employees had been brought there (Boise, where the Senator addressed a convention) and placed in a body in that meeting, as I believe for the avowed purpose of interrupting its proceedings should I presume to express my views there. (Cong. Record, p. 3340.)

we recalled the forester, Mr. Pinchot, and examined him specifically with reference to that statement. We found that Mr. Pinchot was on the platform at Boise, where the meeting took place; that there was a meeting of fifteen hundred or more people, and that some fifteen or twenty representatives of the Forest Service were in attendance for the purpose of conferring with the people who were interested in the reserves, getting their views in relation to the manner in which the reserves should be handled, answering questions and discussing generally the policy of the Department with a view to improving its efficiency and getting it nearer the people. We learned that Mr. Pinchot was on the platform when the Senator made the speech referred to and conferred with the Senator both before and after the speech, and that no complaint was made to him at the time by the Senator of the action of the representatives of his Service, and that no complaint had been made to him since in relation thereto, and that the first intimation he had ever heard that the employees of the Department were supposed to have been guilty of such conduct, or believed to be guilty of such conduct, was in the speech made by the Senator on Tuesday, February 19.

Mr. Pinchot testified that he saw no signs of the men who were connected with his service engaging in the conduct referred to, and that he would not tolerate any such conduct, and that if he could be shown that any representative of his service had on that or any other occasion had any of the rangers or employees of the Forest Service present for any purpose of that kind, or had authorized them to engage in any such conduct, that he would immediately discharge such representative of the Bureau.

To the statement made in the Senate that a man must get a permit before he can enter a forest reserve to reach his own property, Mr. Pinchot stated that the contrary was the fact, and that the law specially provided "that the forest reserves shall be open to all persons for all lawful purposes." The statement that the Government is selling timber and collecting grazing fees from State lands in Idaho he stated also was an error. (880.)

With reference to a case where a reserve was created before a survey made by the State, it appears that the State may, in its discretion, either wait until the reserve is abolished or select indemnity or lieu lands. This is in accordance with the decision of the Interior Department, which is binding upon the Forest Service, and no complaint has ever been made to the Service that it has ever exceeded its authority within the scope of the law as thus construed by the Secretary of the Interior. (880, 882.)

Relative to the criticism of this Service, the following correspondence occurred between Senator Fulton and the committee:

COMMITTEE ON EXPENDITURES IN THE
DEPARTMENT OF AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., February 16, 1907.

HON. CHARLES W. FULTON,
United States Senate.

MY DEAR SENATOR: Referring to my conversation with you yesterday, I have just read your remarks in the Senate of Thursday last, in which you state "I think it (Forestry Bureau) is the worst organized department of the Government. I think the manner in which it is conducted is less creditable to those who have charge of it than any other department."

This is one of the matters into which it is the duty of the Committee on Expenditures in the Department of Agriculture to inquire. We have not yet finished our examination of the Department, but, so far as we have investigated that Bureau, the direct opposite to what you state has been developed. We expect to have Mr. Pinchot before us to-day for examination, and I should be very glad to have you present and cross-examine him for the purpose of developing any facts that may exist.

If, however, to-day would not be convenient for you, I will arrange to have him before the committee at some time that is convenient for you. If, on the other hand, it is not convenient for you to be present and cross-examine him, if you will be kind enough to furnish me with the facts upon which you base your statement I will see that a thorough examination is made upon the lines you may indicate, as we are anxious to develop the precise facts in connection with this, as all of the other bureaus in the Department.

As we are anxious to close our examination at the earliest possible moment, I should like to have a reply, indicating your wishes in the matter, as early as may be convenient.

Yours, very respectfully,

C. E. LITTLEFIELD.

DEAR MR. LITTLEFIELD: I make no charge of corruption or dishonesty. It is the general policy to which I refer and could not explain in short note. I expect to speak more at length on the subject when the agricultural appropriation bill is again taken up. They are including to my personal knowledge within forest reserves vast areas that are untimbered; are making and enforcing unreasonable rules for rights of way and for water rights and privileges, etc. Understand, it is the policy and manner of administering the reserves to which I object, and it is not possible here to go into detail. I thank you, but I am too busy to attend examination.

C. W. FULTON.

(861, 862.)

On Monday, February 18, Senator Fulton stated in the Senate:

But before taking that up let me remind the Senator that through no Department has the Government lost or been actually defrauded of so much as through the administration of the forest reserves. (Cong. Record, p. 3258.)

It is true that Congress has repealed the law that permitted these exchanges, but that for which I condemn the Bureau is for having permitted these worthless lands to be included in reserves, knowing, as they must have known, what the result would be. (3258.)

But that is not the only reason why I say this Department must be chargeable for the fraud that grew up under the administration of that law. As I have said before, it was for the Department to say when and where withdrawals for forest reserves should be made. It was for them to determine whether a tract should be withdrawn that embraced a large portion of the holdings of a land-grant railroad or not; and when they knew the construction that was being given to the law, when they knew that by withdrawing for a forest reserve millions of acres of land held by the land-grant railroads, a great portion of which was practically worthless, the owners of those lands could exchange them for the best agricultural and timber lands in the country, I say it was the duty of a faithful administrator of the law to decline to withdraw those lands and to incorporate them into a reserve. (3259.)

We have examined the law which authorized the land-grant railroads under such circumstances to exchange lands thus included in forest reserves for other lands, agricultural and timber lands, as the case may have been, and we find that the law was repealed on March 3, 1905, and inasmuch as the forest reserves were not transferred to the Forest Service in the Department of Agriculture until sometime in February, 1905, two or three weeks prior to the repeal of the law, making these alleged frauds possible, and during that time no forest reserves were located and no exchanges such as those indicated were authorized, we are not able to see how, in the light of these facts, these suggestions are an effective criticism upon the administration of the Forest Service under Mr. Pinchot.

It is apparent from these facts that when the Senator said "This Department must be chargeable for the fraud," he intended to be understood as criticising the Interior Department (from which the reserves were transferred to the Department of Agriculture) under which that condition was possible, and not the Department of Agriculture (and Mr. Pinchot) under which it was impossible. It is unfortunate that the language used tended to embarrass the Department of Agriculture and its pending appropriation until the facts could be known.

We have examined the Forest Service in the light of all suggestions that have been given to us by gentlemen to whom we have applied for facts upon which they have based their criticisms, and we feel bound to state upon the sworn testimony before us, and the failure on the part of the gentlemen criticising to put us in the possession of concrete facts upon the basis of which criticism of this Service could be made so that we could examine in relation thereto, that the administration of the Forest Service does not on the facts deserve adverse criticism, but upon the contrary the Forest Service has been administered honestly and with great administrative, executive, and business ability.

A careful and intelligent investigation of the work performed by the personnel of this Service, as compared with that performed in certain bureaus of other Departments under the statutory roll, shows that the Forest Service has been getting for \$900 a better service than these other bureaus have been getting for \$1,400; getting more done and better work. (759.) Mr. Pinchot testified that the Keep Commission, had made a careful examination of the question of salaries with the aid of its subcommittees, and had reached the conclusion in comparison with ten bureaus taken from the different Departments,

that while the average increase that would be recommended in salaries would be from 6 to 10 per cent, the increase in the Forest Service, in order to bring it to a level with the other bureaus, would amount to 30 per cent, thus clearly demonstrating that the salaries in that Service were lower than in any other Government organization. (765.)

Hon. James A. Garfield, the Commissioner of Corporations, recently appointed Secretary of the Department of the Interior, testified before us as follows:

The CHAIRMAN. State what you found with reference to the relative efficiency of the Forest Service, as a whole, as compared with other bureaus that you examined.

Mr. GARFIELD. The committee were unanimous in the belief that the efficiency in that service was so much greater than we found in the other offices that we used many of the methods we found in vogue there as a basis for recommendations for changes in other branches of the Government service, believing that if they were put in vogue generally throughout the service there would be an enormous increase in efficiency in the other offices where they were adopted. (875.)

It appeared that the commission spent nearly two weeks of the time at their disposal—one, two, three or four hours a day, as the case might be—during office hours and after office hours, in going over the records and the office accounts in detail in this Service. He testifies further:

The CHAIRMAN. Will you be kind enough to state what they found with reference to its organization and its efficiency as a bureau?

Mr. GARFIELD. As a member of the Commission, I personally went through the Forest Service and examined the various divisions, the methods of accounting, the methods of bookkeeping, the method of safeguarding the supplies and the issue of supplies, the system of handling correspondence and vouchers, the system of filing, the methods in vogue for attending to the work of the aforesaid Service so far as the records of the office were concerned—that is, the reports of the agents in the field, the officers in charge of the forest reserves, and the officers who were the general inspectors in the different districts—examining the reports sent in by these officers, and following through the actions by the Forest Service upon those reports or recommendations. The general result of this investigation was that the committee unanimously agreed that the general system in force in the Forest Service was one of the most complete and most satisfactory of any of the offices which were examined by the committee.

The CHAIRMAN. In any of the Departments?

Mr. GARFIELD. In any of the Departments.

In matters of personnel, the system of, first, the arrangement of salaries, the classes and grades of employees, and the methods of promotion seem to afford the opportunity for the selection of the most efficient employees and the weeding out of the inefficient employees. We examined in detail the records of the various employees and the suggestions made by subordinate officers to their superior officers in many matters connected with administration of the personnel question. There had been in the Forest Service a remarkable movement in the personnel matters. I mean that it was evident from the records that employees were reduced or dropped if they were found inefficient, and the deserving employees, as shown by their records, had been promoted when opportunity afforded and when it was for the best interest of the Service. The organization of the field service was at that time undergoing revision. There were some suggestions made by the committee regarding this reorganization, which, I understand, were thereafter adopted.

The CHAIRMAN. Were they radical in their character?

Mr. GARFIELD. They were not radical, simply an amplification of the system then in vogue, namely, it is made possible for the Chief Forester to keep in constant touch with the work in the field, and by interchange of work, that of bringing men from the field into the office and sending the office men into the field, it gave the Forester and his first assistant an opportunity at all times to know what really was happening among the rangers on the reserve. We found, further, that with the force of rangers that were transferred from the Interior Department a number of important changes had been made. It was evident that when the service was transferred to this Bureau quite a large number of inefficient men were on the list, men who had been appointed not because of any peculiar adaptability to the work or qualification therefor.

The CHAIRMAN. When it came from the Interior Department?

Mr. GARFIELD. Yes. Many of those men had been dropped, and the committee was given to understand that as rapidly as any of the men were found inefficient they would be dropped and competent men put in their places.

We further examined the method used by the Bureau for obtaining efficient men through the civil service and through other investigations made by the Chief of the Forestry Service or his subordinates, and we were convinced that the character of information sought to be obtained was such as would disclose the qualifications of the applicants for the special work to which they were to be assigned.

In other words, the inquiries were not of a character that were simply academic, but sought in each instance to develop the qualifications of those men who were to be sent into the field as inspectors or rangers.

As to the method of handling accounts, we found that there had been a material reduction in the ordinary amount of what is called "paper" work in the handling of vouchers and accounts and in the statement thereof.

The CHAIRMAN. That is, the elimination of duplication?

Mr. GARFIELD. Yes. That by the bringing together in the hands of one officer whose name is Adams, the special fiscal agent, there had been a great saving both in time and expense in the handling and settlement of accounts. And that by bringing together the accounting divisions of the office the Chief Forester was able to check up in a most satisfactory manner the payments of the Bureau for the use of forest reserves. This one point the committee especially examined because it had to do with the question of accounting for receipts of public money, one of the points which in many offices we found open to great criticism.

The system then in vogue in the Forest Service was not as complete as it has since been made; but after the transfer of the work from the Interior Department to the Forest Service the matter had been immediately taken up, and the system which the committee found in vogue was very much better than we found elsewhere, and afforded a means for very careful checking of the funds as they were received, avoiding in a great measure the possibility of misuse or misappropriation or loss of funds before they reached the Treasury Department.

The CHAIRMAN. Did you reach any conclusion as to the compensation paid to the personnel in the Forestry Bureau as compared with other bureaus and other Departments?

Mr. GARFIELD. By reason of the fact that lump-sum appropriations were in use in the Forest Service there had been afforded the opportunity for an adjustment of salaries which the committee found admirable and very much better adapted to the Government work than the ordinary statutory roll, for the reason that it afforded a greater opportunity for the advance of deserving employees by small additional compensation while the work remained the same, and for a larger advance when there was a change of work. The apparent result of the system in vogue was that compensation to officers in that Service was better graded in accordance with the quality of the work and the character of the work than in any of the other offices that we examined which had been as long established as the Forest Service. The amounts paid in the lower grades were much less than those paid in other offices where they had statutory rolls. As I recall it now, they range from \$120 to \$240 less than the lowest grade in other branches of the public service.

The CHAIRMAN. About what per cent would that be approximately?

Mr. GARFIELD. That would be about 25 per cent—from 20 to 25 per cent less than in offices where statutory rolls are in vogue in other bureaus. (869-871.)

We have no hesitation in saying, so far as we have been able to examine this Bureau from the testimony of its officials on oath before us, and our personal inspection of the work (and we do not say that either has been complete and exhaustive, because the time at our disposal has been clearly inadequate for that purpose, but so far as our examination has gone,) we do not hesitate to say that we heartily concur in the conclusions testified to by Mr. Garfield, with reference to the efficiency and character of this Bureau.

We should not have gone into this matter in detail and selected this Bureau for illustration as distinguished from other bureaus in the Department of Agriculture, in all of which we found officials that were able, intelligent, and expert in the work of their respective bureaus, had it not been for the fact that it was made the special object of criticism and attack.

ANIMAL INSPECTION IN LONDON.

In examining the Bureau of Animal Industry with reference to its scientific employees we found that Doctor Wray, who was located in London, was being paid at the rate of \$12.50 per day, and that for the last five years had rendered his accounts on the basis of three hundred and sixty-five days in a year, aggregating annually \$4,562.50. We made a very searching and somewhat extended examination into this item for the purpose of ascertaining whether or not Doctor Wray was rendering service every day in the year, week days and Sundays, without any intermission or exception of any kind for holidays or otherwise.

The head of the Bureau informed us that that matter was left entirely to the statement of the Doctor, and that they had no reports by which they could verify his statement, and that they never had taken any steps to ascertain whether or not, as a matter of fact, he was really actually employed three hundred and sixty-five days in the year. (186.)

We are not able from such examination as we have made to offer any definite opinion upon that point. If we were to make a careful analysis of the testimony as given by Doctor Melvin, the chief of the Bureau, we should be obliged to state that, so far as we could see, he had rendered in a year very much less than three hundred and sixty-five days of service.

We think that, in connection with this service in London, the Department should be in a position to advise itself whether these services are being rendered there as thus certified for. If \$4,500 is the reasonable and adequate salary for a man in that position, we think that position should be cared for with that salary. If, on the other hand, it is to be done upon the basis of a per diem, we think the Department should be in possession of information, independent of the certificate furnished by the Doctor, to satisfy them that every day paid for represents a day's service.

ERADICATION OF SCABIES IN SHEEP AND CATTLE.

For the fiscal year 1906, \$268,172.71 was expended for the eradication of scabies in sheep and cattle. When we came to examine into this item in detail, we found that a very considerable portion of this money was expended in enforcing the police regulations of the various States, Doctor Melvin stating that—

probably two-fifths of the expense, or perhaps not that much, was for work within the State. Possibly that is a little too much, but not very much. (217.)

If two-fifths is a reasonable estimate, the amount expended for this work within the States during the last fiscal year was \$107,028, and, upon the character of the work done within the State and the method in which the police regulation is enforced by the Government officials, Doctor Melvin states as follows:

The CHAIRMAN. Are there provisions in that State legislation for the segregation of cattle, and the destruction of cattle, if need be?

Doctor MELVIN. Well, yes; in some instances. Usually it provides for the quarantine and treatment of the cattle to eradicate the disease. We would not attempt to enter into the eradication of the disease without a suitable State law under which to operate.

The CHAIRMAN. That requires the exercise of control over the cattle by whoever is doing the inspection?

Doctor MELVIN. Yes, sir.

The CHAIRMAN. And that control is exercised under some provision of law enacted by the State?

Doctor MELVIN. In several States their statutes make a provision whereby the inspectors of the Bureau of Animal Industry may become State inspectors, without compensation, in order to enforce their State laws.

The CHAIRMAN. Without becoming and acting as State inspectors they would have no authority?

Doctor MELVIN. No, sir.

The CHAIRMAN. Now, the United States Government, in those instances, simply pays the expense of inspecting the cattle over which the State has exclusive jurisdiction?

Doctor MELVIN. Yes, in one way; although in the case of many of these animals the range conditions are such that they travel from State to State. And that is particularly true in the case of sheep. (218.)

It is true that a great deal of the work done by the Department of Agriculture is more or less paternal in its character, but when the Government deliberately steps in and makes its officials State officials for the sole and only purpose of enforcing State legislation and uses approximately \$100,000 a year for that purpose, it seems to us that this is going rather beyond the limits of paternalism. We do not believe that the Federal Government is justified in appropriating money for the purpose of enforcing State legislation, and our judgment is that such expenditures should be discontinued by the Department of Agriculture.

SALARIES.

We have carefully examined the heads of the Bureaus, Offices, and Divisions for the purpose of ascertaining the amount of the salaries paid, the steadiness with which the employees are kept at work, the basis upon which promotions have been made, and the distinctions between the various classes of clerks. As a rule the testimony before us has shown that the salaries are graded in proportion to the services rendered, and that as promotions are made and salaries increased, increased service, either in the line of quantity or quality, is demanded of and rendered by the employees. We have not had time to prosecute our inquiries by examining individual clerks in the Department. Under a rule issued by the Secretary of Agriculture, an efficiency record is kept and appointments are made upon that basis. This record is open to each employee upon application to the Secretary.

Upon the question of the amount of salary received by Government employees, as compared with those in private employment, we had the testimony of two witnesses who had examined into the subject with care and devoted a great deal of time to it. Doctor Galloway, of the Bureau of Plant Industry, testified that he had been investigating the question of Government salaries in comparison with salaries paid outside for the last eighteen months in concert with a subcommittee of which he was chairman (281). He states, as the result of his investigation, that the Government clerks from \$1,400 down are receiving substantially 25 per cent more than people doing the same class of work in private employ, and that it is true of the other Departments as well as of the Department of Agriculture.

On this point he testified:

The CHAIRMAN. So that you would say, as a rule, throughout the Department, clerks of that grade were receiving from 20 to 25 per cent more than clerks of the same character doing substantially the same work for private parties?

Doctor GALLOWAY. I think I would make it broader than that and say the Government as a whole.

The CHAIRMAN. You would cover all the Government service?

Doctor GALLOWAY. Yes; in a strict comparison of salaries, without other considerations. (281.)

Mr. Pinchot, the Forester, says that he has had occasion to examine the general question of salaries, and when asked over what period of time his investigation has extended, says:

Mr. PINCHOT. I have been investigating it with a good deal of care ever since I came into the Government service, but the Keep Committee's investigation of this subject has been prosecuted mainly within the last year. I would like to say at this point, Mr. Littlefield, that I have reached the conclusion, very definitely, that in general the efficiency of an organization, as well as of the men in it, depends on the salaries and promotions, and on the way the salaries and promotions are handled, more than on any other single factor; and therefore I have given a great deal of attention to that question.

The CHAIRMAN. So that that has been a matter of special study with you ever since you have been in the Government service?

Mr. PINCHOT. It has.

The CHAIRMAN. Since 1898?

Mr. PINCHOT. Yes.

The CHAIRMAN. What conclusion have you reached with reference to the question as to whether or not any portion of the men engaged in the Government service receive more or less than the same men would receive in rendering substantially the same service as private parties?

Mr. PINCHOT. The employees in the lower clerical positions are overpaid, as compared with those in the outside business world.

The CHAIRMAN. Would you be able to fix approximately a limit within which the salaries would be called lower—say from \$1,400 down?

Mr. PINCHOT. From \$1,400 down. Would not that be a proper division, Mr. Price?

Mr. PRICE. Yes; \$1,400 down.

The CHAIRMAN. Taking the salaries from \$1,400 down, your opinion, then, would be that the average salary paid to Government employees is larger than that paid to men of the same ability rendering substantially the same service to private parties?

Mr. PINCHOT. Yes.

The CHAIRMAN. And about how much?

Mr. PINCHOT. From a fifth to a third, approximately.

The CHAIRMAN. That would be 20 to 25 per cent?

Mr. PINCHOT. Twenty to 30 per cent would approximate it.

The CHAIRMAN. That conclusion, as I understand it, is the result of a careful study of this question?

Mr. PINCHOT. Yes; but, let me add, there is a reason why that should be so. (744-745.)

He gives his reason as follows:

The Government pays more for that kind of service than is paid on the outside, in my judgment; but there is very excellent reason why that should be so. In the first place, the Government requires a higher grade of employee than the average business organization, and is not satisfied unless that grade is reached. In the second place, the apportionment by States under the Civil Service Commission means that a very much larger proportion of people in Washington are living away from home, and therefore under extra expense, than is the case in commercial life.

The CHAIRMAN. That would be negatived if they made their homes here, would it not?

Mr. PINCHOT. They can not make their homes here, because they have to be certified from the different States. They had their homes somewhere else first, you see.

The CHAIRMAN. Well, of course they have to change their residence?

Mr. PINCHOT. Yes; and that is always an expensive matter.

The CHAIRMAN. But that only occurs once?

Mr. PINCHOT. Yes; but they come very often from small country towns, or from places where the individual has been living at home, living with relations, under much less expense than is necessary when he comes and lives here in a boarding house. The change to Washington, both in the scale of living and in the absence from home, means on the average an increase of expense which it is fair should be considered. (748.)

And again:

The CHAIRMAN. Well, do not at least 80 per cent of the people employed in similar occupations outside end their lives as clerks?

Mr. PINCHOT. I do not know, but I know that the dread of change is by no means as great outside as it is in the Government service. (748.)

From the testimony of Mr. Pinchot and of Doctor Galloway it is very obvious that a horizontal arbitrary raise without reference to the existing salaries and their relation to the services performed or to the value of similar services performed outside would be wholly unauthorized, unscientific, and unjust, and this is shown by the fact that the percentage of increase according to their estimates would vary anywhere from 6 to 10 per cent.

We find that the aggregate sum paid for salaries \$1,400 and under is \$51,669,700, and 25 per cent of this sum would be \$12,917,425, which is the amount that the Government is now paying annually for services rendered by clerks drawing \$1,400 and under, in excess of what is paid to persons rendering the same kind of service to private parties.

• EFFICIENCY OF THE CLERICAL SERVICE.

While the Department of Agriculture has a fairly good system of efficiency records, we think the supplemental system of efficiency records adopted July 1, 1906, by Doctor Galloway for the use of the Bureau of Plant Industry, which we now quote, is an improvement on the system in use in the Department generally.

It is as follows:

RULES GOVERNING PROMOTIONS OF CLERKS, GARDENERS, MECHANICS, SKILLED LABORERS, AND MESSENGERS IN THE BUREAU OF PLANT INDUSTRY.

In order that promotions in the Bureau of Plant Industry may be made on a strictly merit basis and that the method of determining efficiency ratings and relative standing for clerks, gardeners, mechanics, skilled laborers, and messengers in the Bureau may be systematized, the following rules are hereby promulgated, to take effect immediately, and will govern all future promotions and reductions in the grades mentioned in the Bureau:

I. An efficiency board is hereby appointed, to consist of three members, viz: The Assistant Chief of Bureau, who shall act as chairman; the chief clerk of the Bureau, who shall act as secretary; and the assistant in charge of records, who shall act as secretary in the absence of the chief clerk. It shall be the duty of the efficiency board to determine the efficiency rating and relative standing of all employees enumerated above in the Bureau, prepare suitable blanks, and call for such information as they may deem necessary with regard to any employee coming within the scope of these rules.

II. Semiannually, on or about November 30 and May 31, the head of each office or laboratory will furnish a report to the efficiency board, on suitable blanks, setting forth in detail his estimate of the standing of each employee in the grades covered by this order under his immediate supervision, rating qualifications and factors of efficiency on a scale of 100 wherever practicable. These reports should be based on personal knowledge and observation of the employees, should be fair, conservative, and impartial in every particular, and should represent the unbiased judgment of the officer making them.

III. The efficiency board will then examine these statements and determine the efficiency rating and relative standing of each employee among all the employees of the same grade in the Bureau. It is recognized that the supervising officers are in the best position to pass upon the merits of individual employees under them, and great weight will be given to their estimates; but if for any reason the efficiency board concludes that the estimates of efficiency submitted by an employee's supervising officer are not strictly correct as compared with the general ratings, such estimates may be disregarded by the efficiency board.

IV. The efficiency reports, together with a summary list showing the relative standing of all employees coming within the scope of this order, as arranged by the efficiency board, will then be submitted to the Chief of Bureau for approval.

V. When approved by the Chief of Bureau the efficiency ratings so determined shall remain in force six months and shall govern all promotions within these grades during said period; i. e., the employee who stands No. 1 of his grade will be promoted to any vacancy occurring in the next higher grade, unless he shall have forfeited his right to precedence by some overt act, breach of trust, or neglect of duty in the meantime. No recommendations for promotion will be received or considered for employees covered by this order, except as provided in Paragraph II of these regulations.

VI. As soon as the efficiency ratings are approved by the Chief of Bureau each employee will be notified in writing of his rating and relative standing by the secretary of the efficiency board. In case any employee is dissatisfied with his rating he may present a statement in writing, setting forth his reasons therefor, to the efficiency board, whose action upon the same shall be final.

VII. In case of reductions in the force for any reason, such reductions shall invariably be made from the employees whose efficiency ratings and relative standings as determined by the efficiency board are lowest.

VIII. It is to be understood that in case of employees whose rating is less than 80 per cent, unless they show decided improvement during the succeeding six months, they will be recommended for reduction in grade. Those whose rating is 70 or less and who fail to secure a rating of more than 70 at the end of the following six months will be recommended for dismissal.

The object of the foregoing rules is to secure uniformity in efficiency ratings and place promotions on a strictly merit basis. In the absence of such a system it has been the practice for the head of each office to recommend for promotion such of his employees as were doing the best work in his own office without regard to the claims of other employees of the same grade in different offices, who may have been doing equally as good or better work and were better qualified and more deserving of promotion in every way. Said system provided no means to systematically determine the relative standing of all employees of the same grade, notifying employees of their relative standing and efficiency rating, or of making promotions automatic.

While the head of an office is undoubtedly in the best position to pass upon the merits of employees under his immediate supervision, he is at the same time unable to make comparisons for the whole bureau. It is believed that much better results will be secured if the head of each office will simply report in the case of each employee under him his estimate of the qualities that go to make up an efficient and satisfactory employee and then have these estimates rated numerically by a disinterested board of three members.

Efficiency reports will be made upon a suitable form designed to furnish complete data for the information of the efficiency board in determining efficiency ratings for all employees in the grades covered by these rules and should embody the following features:

(1) A statement by the employee as to his record in the bureau, his prior service in this or other Departments, his training and experience, and his present duties in detail. This will give each employee an opportunity to state what he has done or is doing which makes his services of value to the bureau.

(2) A statement in detail by the head of the office under whom the employee is serving, giving his estimate of the employee with regard to—

- (a) Degree of efficiency in performing present duties.
- (b) Ability.
- (c) Capacity for original work or executive duties.
- (d) Adaptability.
- (e) Habits.
- (f) Personality.
- (g) Value of employee.

These captions should be further subdivided for the purpose of securing careful consideration and complete answers with regard to all the elements which enter into the composition of an efficient employee and to avoid the giving of general or perfunctory answers of little value to the efficiency board in determining efficiency and relative standing.

(3) Report of the time clerk relative to annual leave, sick leave, and leave without pay. The ratings on attendance, as shown by the record of the time clerk, will be based on the following considerations: Annual leave for periods of a week or more is granted to enable an employee to take necessary rest or recreation on the ground that his general health and his efficiency and value as a clerk will thereby be improved and increased. Leave is granted for periods of less than a week and fractions of a day

to enable employees to meet emergencies not connected with their official duties. However, frequent application for leave of short duration is detrimental to the service, because it involves considerable clerical work in granting and recording same, interrupts the transaction of official business, causes inconvenience, and indicates that the employee has other interests which demand a considerable portion of his time, and the real object of annual leave is defeated.

For the reasons mentioned, where the records show that an employee habitually takes a considerable portion of his leave in short periods without good reason therefor, the efficiency board will make such deduction from his efficiency rating as, in their judgment, the facts may warrant. With regard to sick leave it is obvious that the time the employee is absent on sick leave is lost to the bureau. Sick leave is provided for exceptional and meritorious cases only and is granted as a privilege and not as a right. The practice of taking sick leave by some of the employees of the bureau has grown to such an extent as to constitute an abuse. A considerable deduction will therefore be made by the efficiency board from the rating of any employee who is shown by the records to have been on sick leave during the preceding six months, except where, in their judgment, any deduction would be manifestly unjust, in view of the employee's past record. The same remarks apply to leave without pay. The head of an office, in planning his work, has a right to assume that the employee will be present for duty continuously, except for annual leave and legal holidays. Absence for any other cause will result in an unequal distribution of the work to other employees, inconvenience to the office, and detracts from the efficiency of the employee, for which a suitable deduction will be made from his rating.

4. The fourth section of the efficiency report will consist of a statement by the efficiency board showing their rating on each qualification of the employee, based on the statements contained in the preceding sections. In determining these ratings the efficiency board will exercise their judgment, giving due weight to the character of the statement.

To secure uniformity and enable comparisons to be made, each qualification will be rated on a scale of 100. As it would be manifestly unjust to give the same weight to each qualification, the following weight factors will be used in determining the average efficiency:

Elements considered.	Weight factor.
Previous departmental service.....	2
Training and experience.....	4
Service in the Bureau.....	4
Capacity for higher grade work.....	10
Adaptability.....	10
Efficiency in performing present duties, and ability.....	40
Habits.....	10
Personality.....	10
Sick leave and leave without pay.....	10
Total.....	100

The sum of the ratings of each qualification multiplied by its weight factor and divided by 100 will give the average per cent of efficiency, which will be the efficiency rating of the employee, as determined by the efficiency board. All the employees affected will then be listed, according to grades, in the order of their ratings, beginning with the highest, which will show at once the relative standing of each employee among those of the same grade. This list, when approved by the chief of bureau, will not be subject to revision or modification, except as provided in paragraph VI hereof, during the succeeding six months, and shall govern all promotions and reductions until the expiration of that period.

It is believed that the system outlined above will have a marked influence in securing better service throughout the bureau, because no employee will be overlooked, his merits will be carefully considered at stated intervals, and his relative standing and chances for promotion will depend entirely upon his own individual efforts. Certain qualities are given relatively great weight in determining efficiency and standing. Improvement along those lines will secure a higher rating, and the one having the highest rating among those of his grade will invariably be promoted to any vacancy occurring in the next higher grade so long as he maintains his position at the head of the list and does nothing to forfeit his right of precedence. This rule will be strictly adhered to in all cases, and no exceptions will be made for any cause. Employees who fall below the standard fixed in paragraph VIII hereof will just as

surely be recommended for reduction or dismissal, in order to make room for more efficient employees. It must be distinctly understood that advancement or reduction depends entirely upon the quality of the service rendered.

B. T. GALLOWAY, *Chief of Bureau.*

Approved:

JAMES WILSON,
Secretary of Agriculture.

EFFICIENCY REPORT.

Name..... Title..... Salary: \$.....
Record:

- Bureau of Plant Industry—
 - Original appointment: Date..... Title..... Salary.....
 - Changes in grade.....
- Service in other Departments prior to appointment in the Bureau of Plant Industry.....
- Training and experience prior to entering Government service (character of training, compensation, etc.).....
- Present duties in detail.....
- Date..... (Signature.)

(Above blanks to be filled in by employee.)

(Following blanks to be filled in by head of office, laboratory, or supervising officer. Grade on scale of 100, as indicated, and assume that 90 per cent is a fair average. Printed numbers indicate the highest possible number of points that can be given for any subject. Employees whose general average falls below 80 and who fail to improve will be recommended for reduction. Those whose average falls below 70 and who fail to improve will be recommended for dismissal.)

(I) Efficiency and deportment:

- (1) Efficiency in performing present duties (mark one only of the following lines)—
 - (a) Clerical work (amount 50, quality 50)..... 100
 - (b) Stenographic work (accuracy 30, speed 20) and typewriting (accuracy 20, neatness 15, speed 15)..... 100
 - (c) Clerk, stenographer, and typewriter (accuracy 40, neatness 30, speed 30)..... 100
 - (d) Artist, photographer, gardener, carpenter, painter, plumber, fireman, messenger, watchman, or skilled laborer (amount 50, quality 50)..... 100
- (2) Deportment (mark all of the following)—
 - (a) Is employee habitually punctual?
 - (b) Is employee trustworthy?
 - (c) Is employee absent from desk during office hours (frequently, occasionally, or sometimes) to the neglect of official duties?
 - (d) Does employee voluntarily remain after office hours when necessary to prevent work from falling in arrears?
 - (e) Is employee habitually industrious (10),; prompt (5),; subordinate (5),; conscientious (5),; cheerful (5),; zealous (5),; neat (5),; faithful (5), 45
 - Does employee smoke cigarettes?
 - Does employee habitually use intoxicants?

(NOTE.—A deduction of 40 will be made from the average on deportment of any employee who is reported as smoking cigarettes or using intoxicants.)

(II) Utility and ability:

- (3) Capacity for original work or executive duties (i. e., ability to accomplish results without constant supervision or direction)—
 - (a) Character of duties.....
 - (b) Degree of capacity for such duties..... 100
- (4) Adaptability—
 - (a) Capacity of employee to readily perceive what is wanted, devise methods, adapt means to ends, adopt suggestions, and execute the directions of others..... 50
 - (b) Ability to take up entirely new work and perform it intelligently and satisfactorily 50

(III) Estimate of employee's value:

- (a) Are employee's services entirely satisfactory to his superiors in his present situation?
- (b) If not satisfactory, in what respect?
- (c) Would employee be likely to render better or more efficient service if given other work or transferred to another office? If so, what work or office?
- (d) Is general health of employee good, fair, or poor?
- (e) Has employee performed any special service during the past six months which would tend to distinguish him from others of his class? If so, what service?
- (f) Is employee deserving of promotion?
- (g) Has anything occurred during the past six months which would detract from employee's efficiency and should be considered in determining his present rating? If so, what?
- (h) In your opinion what could employee do to make his services more valuable or satisfactory in his present position?
- (i) Is employee likely to improve in general efficiency?
- (j) Is employee's efficiency likely to decline in the near future for any cause (e. g., age, ill health, habits, etc.)? If so, for what cause? ..
- (k) In your judgment, what are the services now performed by employee worth, as compared with others performing like service in the Bureau?
- (l) What, in your judgment, would his services be worth if given other duties or transferred to another office of the Bureau involving increase of work or responsibility which employee is capable of performing? Name the duties or the office.

Remarks.....

(Signature).....
(Title).....

Date.....

[To be filled in by time clerk.]

Attendance:

- (1) Number of applications for leave during past six months made by employee for periods of—
 - (a) Less than one day.....
 - (b) More than one day but less than a week.....
- (c) Total number of applications for leave.....
- (2) Number of days absent on annual leave with pay during past six months.....
- (3) Number of applications for sick leave.....
- (4) Total number of days absent on sick leave.....
- (5) Number of days absent without pay.....

Date..... (Signature).....

[To be filled in by efficiency board.]

Qualifications.	Ratings based on preceding reports.	Weight as factor.	Total number of points.
(1) Record of service in the Bureau.....		4	
(2) Training and experience, including previous departmental service.....		6	
(3) Efficiency in performance of present duties.....		30	
(4) Department.....		10	
(5) Capacity for higher-grade work.....		20	
(6) Adaptability.....		20	
(7) Sick leave and leave without pay.....		10	
Total weights and points.....		100	

General average (total number of points divided by 100, showing efficiency on scale of 100).....

Relative standing among..... employees of class..... on above rating.....

Remarks.....

Efficiency Board.

Date.....

NOTIFICATION OF EFFICIENCY RATING AND RELATIVE STANDING.

U. S. DEPARTMENT OF AGRICULTURE,
 BUREAU OF PLANT INDUSTRY,
 Washington, D. C., , 190...

.....:
 In accordance with the provisions of Paragraph VI of the Rules Governing Promotions and Efficiency Ratings in the Bureau of Plant Industry, promulgated July 1, 1906, you are advised that your efficiency rating for the six months ended, 190.., is, and your relative standing is among employees of your grade.

By direction of the Chief of Bureau:

.....
Secretary Efficiency Board.

Qualifications.	Ratings.	Weight as fac.or.	Total number of points.
(1) Record of service in the Bureau.....	4	.....
(2) Previous departmental service.....	2	.....
(3) Training and experience.....	4	.....
(4) Efficiency in performance of present duties.....	20	.....
(5) Ability.....	20	.....
(6) Capacity for higher grade work.....	10	.....
(7) Adaptability.....	10	.....
(8) Habits.....	10	.....
(9) Personality.....	10	.....
(10) Sick leave and leave without pay.....	10	.....
Total weights and points.....
General average on scale of 100.....

We think an efficiency record in substance on the line of the plan adopted by Doctor Galloway should be applied to not only the Department of Agriculture, but applied to all the Departments of the Government; that promotions in office and reductions in office and dismissals from the service should be made upon the basis of such records, together with the factor of the personal equation which is necessarily involved in the matter of effective service.

We think that transfers from one Department to another should be made so that the clerk should enter in the Department to which he goes at the same grade he occupied in the Department which he leaves, and be subject to the same method of efficiency promotion. We think that each clerk should have open to him at all times the record thus kept, and should be served with notice of the condition of his record as often at least as once in six months. If promotions and reductions and dismissals from the service can be courageously made upon the basis of such records, the whole question of superannuation would be disposed of. As we understand it, the Civil Service Commission have the power to make regulations which would make an effective efficiency system operative in all the Departments of the Government, in the clerical force at least, on the lines indicated, and we express the hope that such a universal system may be adopted.

COST KEEPING.

The Keep Commission have recommended that the heads of the various Departments, bureaus and divisions thereof, as well as independent Government establishments here in Washington and those

outside of Washington, be directed to install cost-keeping systems at once wherever it is possible to do so, and they say that—

while cost keeping is especially important in the manufacturing, construction, and other branches of the service which may be termed "industrial," yet its principles are equally applicable to nearly all branches of the Government service, and will, if introduced, undoubtedly produce excellent results.

We believe that cost keeping should be introduced in every Department of the Government where it is reasonably applicable, and this includes substantially everything that is clerical in its character. With a proper system of cost keeping it will be very easy to determine what it costs to produce a given number of units of result, and the work of each bureau can be tested by a comparison of the units of results produced and the cost involved in producing those units.

The one producing the greatest number of units of results with the least cost to the Government could be used as a standard by which other bureaus could be measured, and if the heads of other bureaus were not able to approximate to the standard thus established, it would simply demonstrate their lack of capacity and involve a change in the head of the bureau in order that some man of greater executive capacity might take charge and see that the maximum of results with the minimum of cost was produced by the operation of his bureau.

With a cost-keeping system the lump-fund salary system could be generally applied and thus eliminate the inelastic, arbitrary, and wasteful method of statutory salaries now so generally in use. The criticism upon the lump-fund salaries as compared with the statutory salaries is the liability of its abuse by the men who have the administration of the appropriation. We believe that the law should define the various classes of clerks, establish the salaries for the classes, describe in a general way the character of the work to be done, fix the maximum sum that could be paid to clerks, leaving the number of clerks to be employed in each grade within the discretion of the head of the bureau, provide that no other classes could be created, except in case of other and specific kinds of work, and then appropriate a specific sum for salaries to be expended under such provisions.

With such legislation we believe that the danger of abuse would be practically eliminated, the necessary elasticity in the management and handling of the clerks would be obtained, and with a cost-keeping basis the clerical Government service would more closely approximate to a well arranged, systematic, and economical business institution, and that by the adoption of such a method the maximum of results at a minimum of expense could be obtained in the Government service. We think this should apply to all of the Departments of the Government.

Universal application of this plan to all Departments of the Government, and especially in the line of efficiency records and promotion is, in our judgment, absolutely essential to correct and judicious administration. When a clerk is transferred from one Department to another with reference to the matter of promotion, the position to be occupied and the salary to be received therefor, he ought to stand in precisely the same position relatively that he stood in the Department from which he was transferred. We found two striking illustrations of the removal of men from the Department of Agriculture to another Department where the salary was increased by the transfer to the extent of from five to seven hundred dollars per man. (420, 422.)

This demonstrates either a gross inequality in the two Departments with reference to the classification of the clerks and the compensation paid therefor, or a condition that makes it possible to demoralize the service in one Department by the arbitrary transfer to another, resulting in a large increase of salary without any additional qualification upon the part of the clerk or without his rendering any correspondingly greater service to the Government.

This condition, in our judgment, it is absolutely essential to eliminate in order to preserve and maintain the harmony and morale of the service. The adoption of a plan of this kind would relieve the Departments of the intolerable pressure that now exists for a transfer from one Department to some other where the salaries are apparently much larger and the services to be rendered no more, and sometimes very much less.

PURCHASE OF SUPPLIES.

When we began to examine into the question of the purchase of supplies we very quickly developed the fact that the Keep Commission had, during the progress of its investigation, made a very thorough and exhaustive investigation of that whole subject, which made it unnecessary for us to pursue that investigation in detail. Their examinations developed a most extraordinary and, from a business point of view, a most reprehensible condition of affairs existing in the various Departments with reference to the purchase of supplies.

There was an utter lack of standardization and an entire absence of business methods. They found, as an illustration, that under the existing practice the Government is at the present time purchasing 28 different kinds of ink, 278 different kinds of pens, 11 different kinds of typewriter ribbons, and 132 different grades of pencils. They found that one Department was paying \$1.70 per dozen quarts for ink, and that another Department, purchasing of the same dealer, was paying for the same article at the rate of \$3 per dozen quarts. A condition like that existed with reference to a great many of the articles on the schedule of supplies being purchased by the various Departments.

Such a condition is inexcusable and well-nigh scandalous and should under no circumstances be allowed to continue. It is too obvious for discussion that when goods are purchased of one dealer, that the lowest price is the highest price which the dealer would be able to secure if the business was done with him on a business basis by all of the Departments, and when an article like ink is sold to one Department for \$1.70, and to another Department for \$3 by the same dealer, it discloses a condition of affairs that demands immediate remedy.

The commission have discovered that it will be impossible to entirely remedy this condition without an amendment to the statutes, and they have recommended in their report to the President an amendment to the law which is substantially included in the last section of the sundry civil bill which has just passed the House, providing, among other things, for the creation of a joint supply committee, under the operations of which all supplies will be standardized and purchased at a level price and in very much larger quantities than they are being purchased under existing conditions.

The commission has made recommendations to the various Departments which are intended to carry out their ideas so far as is possible

without the aid of the necessary legislation. These recommendations, we are advised, have been promptly adopted by the Secretary of Agriculture. The existing condition results in an annual loss to the Government by this grotesque and reprehensible lack of business methods to the amount of several hundred thousand dollars a year, which would be easily saved if the recommendations of the commission with reference to standardization and the concentration of the purchase of supplies under a committee of supply and the legislation needed therefor are adopted, and a very much larger saving can be annually produced as the system thus devised by them is placed in operation and becomes practical and effective.

We heartily approve of legislation upon the lines suggested by the Keep Commission.

CORRESPONDENCE AND FILES.

In our visit to the Department for the purpose of making what was necessarily a hurried personal inspection of their method of doing business, we found that there was quite a variety of methods in vogue in respect to the treating and handling of their correspondence and files. Some bureaus pursue the method that has long been in use of filing copies of their correspondence in files alphabetically indexed, and in keeping their replies to correspondence in letter books, which are, in turn, indexed. Others are using what is known as the vertical card index file, and instead of keeping replies to correspondence in letter books, keep them on separate, individual sheets, filing the sheet containing the copy of the reply with the letter to which it is a reply, and then having a complete card index to the correspondence thus arranged. Others are using a copy book in addition to the copies thus made.

We have not been able to give this subject sufficient examination to be able to state definitely just what course ought to be pursued in order to produce the most efficient and economical method of handling the files and correspondence. We do not think that the letter-copy book that is kept in connection with the vertical index file is necessary. We think that all of the bureaus and offices should have the men who have the control of their correspondence and files meet and confer together and thoroughly canvas the situation and then adopt for the use of the whole Department some uniform system that is, after a thorough and careful investigation, found to be the most efficient and economical.

EDITORIAL WORK.

In the Division of Publications, including the editor in chief, there are eight officials with an annual salary charge upon the Treasury of \$15,250. We find that the method of preparing and publishing the publications of the Department of Agriculture involves, under the existing system, three processes.

First. The original preparation of the article by the scientist having a subject-matter in charge, who prepares his article upon the basis of the information that he has obtained and gives the substantive facts to be included in the article.

Second. A revision of this work by an editor connected with the particular bureau to which the scientist is attached, who goes over the article from the standpoint of its literary construction and form, and

also verifies the accuracy of the data therein contained by reference to original matter and publications containing the necessary information.

Third. The work is again read and revised by one of the editorial men in the Division of Publications, so that every document of any consequence that is issued by the Department of Agriculture has gone through at least three hands; first, the original writer, the composer of the article; second, the editor connected with the bureau, office, or division; and, third, the editorial staff in the office of the Division of Publications.

Mr. Hill, who is a very intelligent gentleman and the head of the Division of Publications, feels very confident that these two revisions of the work of the author are necessary. The editorial work in his Bureau is done rather more from the standpoint of the policy of the Department and they act as the representative of the Secretary of Agriculture than from the technical or scientific standpoint. While we examined into this matter with a good deal of care and are not able to say as a matter of finality that one editorial supervision ought to be sufficient for all practical purposes, we think that is a matter that should be taken up carefully by the Department and thoroughly examined with a view to ascertaining whether or not a thoroughly competent editor attached to the various bureaus would not be adequate for all practical purposes and thus reduce in quite a degree the expense involved in this branch of the work.

STATISTICAL WORK.

We found that in 1904, from April to January, 1905, inclusive, that Mr. Olmsted, now the Chief of the Bureau, was holding an office under the Phillippine Government, in relation to the completion of the census of the Phillippines, and one under the Department of Agriculture in the Bureau of Statistics, known as the Chief of the Division of Domestic Crop Reports of the Bureau of Statistics. (632.)

There is a regulation in the Department of Agriculture reading as follows:

Persons holding appointments to positions in other Departments, or officially connected with any other branch of the Government service, will not be employed in any capacity, even temporarily, in the Department of Agriculture. (638.)

That has been in force since June 1, 1901.

The statutes also provided—

That no part of the money herein or hereafter appropriated for the Department of Agriculture shall be paid to any person, as additional salary or compensation, receiving at the same time other compensation as an officer or employee of the Government. (23 Stat. L., 356.)

Section 1763 of the Revised Statutes of the United States provides:

No person who holds an office, the salary or annual compensation attached to which amounts to the sum of two thousand five hundred dollars, shall receive compensation for discharging the duties of any other office, unless expressly authorized by law.

Section 1765 provides:

No officer in any branch of the public service, or any other person whose salary, pay, or emoluments are fixed by law or regulations, shall receive any additional pay, extra allowance, or compensation, in any form whatever, for the disbursement of public money, or for any other service or duty whatever, unless the same is authorized by law, and the appropriation therefor explicitly states that it is for such additional pay, extra allowance, or compensation.

Mr. Olmsted was holding a position under the Philippine government at the time of his appointment in the Department of Agriculture; and at that time it appears that Mr. Olmsted and the officials of the Department of Agriculture examined the law and reached the conclusion that his employment by the Department of Agriculture under the circumstances was not prohibited by the law, and we think that the law was fairly open to that construction so far as its letter is concerned. It is our opinion, however, that this duplicate employment was contrary to the spirit of the law, and we do not approve of his employment by the Department of Agriculture under these circumstances.

He states that his salary under the Philippine government was \$3,000 a year. (632.)

The disbursing agent of the Philippine revenues, Mr. Ruan, states that he was paid at the rate of \$300 a month during this period, which would be \$3,600 a year. (681.) He received from the Department of Agriculture a salary of \$2,800 a year. (632.) When he went into the Department of Agriculture he did the work that purported to be done by a man who had been drawing an \$1,800 salary (633), and says that he not only did that, but did a good deal more than the \$1,800 clerk had been doing. (634, 641.) His work under the Insular Bureau had become so small that it took very little of his time, and he did the principal part of the work nights (634), leaving the Department of Agriculture sometimes for half an hour at a time, getting permission therefor when leaving.

It seems from his statement that when he went into the Department of Agriculture things in that Bureau were in a chaotic condition; that everything was in a tangled mass, which had to be straightened out, and he had to reorganize the whole work. (641.)

We examined a part of the employees in the Bureau of Statistics for the purpose of ascertaining the character of the work done by Mr. Olmsted when he took charge of the division in April, 1904.

Mr. Blodgett states that when Mr. Harrison dropped out he thinks his work was done for a while under the direct supervision of Mr. Olmsted, and in answer to the following question replied:

The CHAIRMAN. What I mean is, who physically did it?

Professor BLODGETT. The same set of clerks have done it for a long time. They have been under the direction of what might be called a section chief, and Mr. Olmsted sat in that room for a considerable time. With regard to dates, I have not looked this up, and I do not want to be held responsible for that part of it.

* * * * *

The CHAIRMAN. Was there any change made before this last year in the business of your office and in the manner in which it was conducted?

Professor BLODGETT. Nothing of great import. The work is very nearly the same as it was when I first took it up. We are following very largely the same forms.

The CHAIRMAN. Then do we understand that there was substantially no change except this that you have spoken of as taking place during the last year?

Professor BLODGETT. I do not think of anything in particular that affected us directly. We are working on sheets of the same form as we were working on before and getting out the monthly reports. There have been minor changes in the forms of these sheets, but the general arrangement is the same. (705-706.)

Mr. Stone on being examined said:

The CHAIRMAN. After Mr. Harrison dropped out, who did his work?

Mr. STONE. I did.

The CHAIRMAN. How long did you continue to do it?

Mr. STONE. I think I did it most of the time for nearly two years before Major Harrison went away, then for about eight or nine months after Major Harrison went

away. I think it was before Mr. Olmsted came in and took charge of the division that I had full charge of that section and did the work that Major Harrison was doing. (707.)

It appears that Major Harrison left the Department at about the time Mr. Olmsted took charge of the division.

Mr. Stone further testifies:

The CHAIRMAN. Was there any change in the methods of the work in the Bureau; and if so, what?

Mr. STONE. I do not understand that there was any large amount of change in the work that was done in the division or in the section.

The CHAIRMAN. That is, any change in personnel or in redistribution of duties, or any change in methods of getting information?

Mr. STONE. No, sir; until we arrived at those additional schedules that we put on about a year and a half ago. The matter was brought forward and worked up, you know; it was studied over. We had to have a certain line of questions on certain groups. Under Mr. Olmsted's direction the schedules were enlarged and we took in ten or twelve additional groups—minor groups.

The CHAIRMAN. Going more into detail?

Mr. STONE. It made quite a good deal more work.

The CHAIRMAN. You say that was done about a year and a half ago?

Mr. STONE. Yes, sir.

The CHAIRMAN. That was about the time of the Hyde difficulty, was it not?

Mr. STONE. Yes, sir; right after that.

Mr. OLMSTED. May I suggest something?

The CHAIRMAN. Certainly.

Mr. OLMSTED. Both these witnesses have overlooked the fact that when I took charge there was no Division of Domestic Crop Reports.

The CHAIRMAN. You may ask these witnesses anything at any time.

Then, with the exception of the additional schedules adopted something like a year and a half ago and broadening the sources of your information, you recall no change in the method of doing business in the office?

Mr. STONE. I do not know that—of course that would be a reflection upon myself, because I had charge of that work for some time.

The CHAIRMAN. There is no reflection intended on anybody.

Mr. STONE. No; I do not understand that there was any great amount of increase in methods in the office. (709.)

Mr. Ferguson testifies:

The CHAIRMAN. So that you were there when Mr. Olmsted came to the Bureau for the last time?

Mr. FERGUSON. Yes.

The CHAIRMAN. State in your own way what changes, if any, were made in the method of doing business in that office at that time or immediately afterwards.

Mr. FERGUSON. I do not know how to express it. The method of the work was changed slightly in that we were not allowed to finish up our sheets as we had formerly done. (713.)

Mr. Clark, Assistant Chief of the Bureau, states:

The CHAIRMAN. Please state in your own way what change, if any, was made in the methods of doing business in the Bureau after Mr. Olmsted came to the Bureau the last time; that was in April, 1904. We are familiar with the conditions before and with the conditions since.

Mr. CLARK. Yes, sir.

The CHAIRMAN. State it in your own way.

Mr. CLARK. Along in 1903 Mr. Hyde, who was then Chief of the Bureau, was very much disturbed and agitated by the way the statistical computations and compilations were being done in the two different sections.

The CHAIRMAN. That is, the township and the county sections?

Mr. CLARK. Yes. There was also more or less gossip going around the Bureau and there was a lowered degree of morale and discipline.

The CHAIRMAN. You say "gossip was going around the Bureau." What do you mean by that—that the clerks were gossiping with each other?

Mr. CLARK. Yes; that they were gossiping and passing around stories about each other and the officials, and so forth.

Mr. SAMUEL. What foundation was there for that?

The CHAIRMAN. Oh, my; those things do not have to have any foundation. [Laughter.]

Mr. CLARK. Mr. Hyde discussed it quite often in my presence, and stated frequently that he wished Mr. Olmsted was back. Mr. Olmsted had been Assistant Statistician, I think, in 1902, and Mr. Hyde had a great deal of confidence in him and reliance upon him as an executive, a disciplinarian, and administrator; and when Mr. Olmsted returned from the Philippine Islands, where he had been engaged in assisting in the taking of the Philippine census, Mr. Hyde stated that he wanted to have Mr. Olmsted return to this Bureau, and that he was going to try to get him reappointed in his Bureau. He had been off on leave without pay from our rolls. Mr. Hyde was trying to devise some method of reorganization of the crop reporting and tabulating sections, and decided upon a plan of organizing them into a division to be called the division of domestic crop reports, and he said that Mr. Olmsted would be appointed chief; and Mr. Olmsted was reappointed in the Bureau as chief of that division, according to that plan.

Mr. OLMSTED. Right there, allow me, just a moment. Do you recall that Mr. Hyde made several efforts to have me come back to the Bureau, which I declined three or four times because the work of the Philippine census would not permit me to come back, and finally, the work of the Philippine census having reached a point where I could come back without interference of that work, I agreed to come?

Mr. CLARK. He did not discuss those points with me, but he said that he was endeavoring to get Mr. Olmsted to come as soon as his work in the Census would permit of it.

To return; as one of the examples of demoralization in that Division, I can cite the case of a list of ginners which the Bureau had had for some six or eight or ten years. The Census Bureau had, I think, in 1902, been required by Congress to take each year a census of the amount of cotton ginned from time to time during the ginning season. In the preparation of that census they naturally secured the names of all the ginners in the United States through their different special agents, etc. Therefore, and for some time thereafter, we had had a list in our Bureau of cotton ginners secured by correspondence with postmasters and agents in the South. A comparison of that list with the Census Bureau's list showed that we had about 30,000 "dead ones," as we called them—duplicate names, deceased ginners, ginners who had gone out of business, ginners who had combined their business into one company, and names of five or six members of the same ginning company. In other words, we had had about 30,000 duplicates.

Mr. Clark also states that the plan of segregating the sheets so that the tabulations of a sheet were made by a different set of clerks, so that neither set of clerks would know the sheet upon which they were engaged was inaugurated in May, June, and July of 1904, under Mr. Olmsted's direction and supervision. (723, 724.)

Mr. Olmsted states that this matter of segregating the sheets was inaugurated a few months after he entered the Bureau (739.)

Mr. Pepper states that this idea of segregating the sheets was suggested by him and adopted in the bureau between September and November, 1904. (734.)

An inspection of the original sheets themselves discloses the fact that the first segregation of the sheets, or the separation of one part from another, so as to make it impossible to ascertain the identity of the parts and thus get together accurate information as to results, was made in October, 1904.

From the testimony of Mr. Clark it appeared that the force in the Bureau of Statistics were able to do about \$15,000 worth of extra work for outside bureaus, or 20 per cent more than they did in 1903-4, and that they did this extra work without additional cost, and he testified in answer to inquiries as follows:

The CHAIRMAN. I would like to know whether that came about by reason of the fact that Mr. Olmsted was able to get more work out of them or because his arrangement and management was such that their efficiency was increased, or whether, before that time, they were not fully employed? Which of these alternatives was it?

Mr. CLARK. A little bit of all three of those. (725.)

Mr. Clark now claims, however, that the force is fully and continuously employed all the time.

So far as we have been able to ascertain, within the limits of the examination we have been able to make, this appears to be the fact.

Mr. Graham testifies:

The CHAIRMAN. What sort of work did Mr. Olmsted do while he was there in the Bureau from April, 1904, to January, 1905?

Mr. GRAHAM. I should say general supervision; overlooking all of the sections. (732.)

Mr. Pepper states that he does not recall any particular change in the work, except that there was an improvement in discipline, and in reply to the following question, stated:

The CHAIRMAN. What change was there in methods?

Mr. PEPPER. I do not recall any change of methods at all—that is, any change of method of getting the reports—but I know that until late in the year 1904 there was no change made in getting the final averages. (734.)

Miss Burch testifies:

The CHAIRMAN. What can you say about the duties that he had to discharge there that occupied him in the Department, and the time that he put in during office hours?

Miss BURCH. I do not see how much stress can be laid upon that, for I missed Mr. Olmsted very little from his duties in the Division. It seems to me he was never absent in the morning at 9 o'clock, but I do recall his leaving the office occasionally during the week for a short period of time. I can not remember whether he was away an hour and a half or two hours, but I know if he went in the forenoon he was always back by 1 o'clock. I can not recall a single time that he was away in the forenoon and remained away in the afternoon.

* * * * *

The CHAIRMAN. And what sort of work did the chief of the Division have to do at that time?

Miss BURCH. At that time there was a sort of reorganization of the office, I may say, because there was this new division being created, and of course Mr. Olmsted had a good deal of work that was purely original on his part, and work that required a great deal of thought, and of course I can not tell you just how much real work he had to get down and do. He was employed thinking about the office and its reorganization all the time, I could see that. He was much taken up with the Bureau of Statistics. His work in the Bureau of the Census, I think, took very little of his thought, but it may have taken a little of his time. His real work was here, and he had much to do in reorganizing or creating this new division of domestic crop reports, and bringing the work, bringing the lines of work, into distinct lines, you know, and assigning proper clerks to proper work.

The CHAIRMAN. That is, he was getting his work systematized?

Miss BURCH. Yes; he was systematizing the work.

Miss Schmidt testifies:

The CHAIRMAN. What was he doing at that time?

Miss SCHMIDT. He was doing the work. He was not away. We would have to ask him all sorts of things, and he was busily employed all the time. (737.)

Miss O'Donoghue testified:

The CHAIRMAN. Was the character of the work such as required his attention?

Miss O'DONOGHUE. Yes; I think that it has improved very much since he came to us. That is to say, he disciplined us greatly and kept us busy.

The CHAIRMAN. Was the quantity of the work that was needed to be done after he came there in excess of that which was done before?

Miss O'DONOGHUE. Yes; it was in excess.

The CHAIRMAN. In what particular was the excess?

Miss O'DONOGHUE. You mean what class of work?

The CHAIRMAN. Yes.

Miss O'DONOGHUE. It was on broader lines and increasing the general work, and, as I say, there was a great deal more work getting up the report, for instance; we

had a great deal more work on that. Of course cutting off the sheets and mixing up the thing as it has to be done keeps us very busy.

The CHAIRMAN. When was this cutting off of the sheets and mixing up inaugurated?

Miss O'DONOGHUE. I am not good at dates, but I think it was about the time he came. (738-739.)

Mrs. Noah testifies:

The CHAIRMAN. What have you to say as to the amount of work that was done in the Bureau, so far as you know, after Mr. Olmstead came in, as compared with the work done before he came in?

Mrs. NOAH. I know we are kept very busy now, and before that we were not so very busy. There were times when there was a little leisure, but now we are very busy, and we keep a daily record of the time and the class of work that we do.

The CHAIRMAN. Did the work of the division require the personal attention of Mr. Olmsted after he came there and organized it?

Mrs. NOAH. It did, and he was there all the time with the exception, as others have stated, of those times when he was at the Census Bureau directing the Philippine census. (739.)

Mr. Olmsted is undoubtedly a man of fine executive ability and, in our judgment, improved the business conditions and discipline in the office when he took charge.

We think, from Mr. Olmsted's statement of the work of this Bureau, that a very decided improvement has been made in the character of the work, the efficiency of the force, and the value of the results to the public, especially in connection with cotton statistics.

DUPLICATION OF STATISTICS.

We made an extended examination of Mr. Olmsted with reference to the question as to whether the work that he was doing was being duplicated by any other statistical bureaus in the Government, and so far as we could see there is no duplication in his work. There are a number of divisions or offices in the various Departments that are collecting statistics, the principal of which are the Census Bureau, the Bureau of Statistics in the Department of Commerce and Labor, the Labor Bureau, and this Bureau of Statistics in the Department of Agriculture.

While we have not been able to ascertain that there was any substantial duplication in the work of either, our judgment is that the heads of these various bureaus should be required to confer with each other as often as once a month for the purpose of ascertaining whether or not there is such duplication and whether any of the bureaus can avail themselves to advantage of the services of the other bureaus in any particulars, and thus save either direct or indirect duplication of work and economize expenditures.

INDEXING PUBLICATIONS.

In the course of our examination of the division of publications we found that quite a portion of the force were engaged in bringing up to date a card index of the publications of the Department of Agriculture. We had previously ascertained that these same publications, located in the general library of the Department of Agriculture, had been fully and completely catalogued with the work up to date.

Upon inquiry, we found that the Chief of the Division of Publications had never conferred with the librarian and examined the card catalogue which had been prepared under her supervision for the purpose of ascertaining whether he could utilize the work which had

already been done in his cataloguing. His idea was that he needed a more detailed and intensive catalogue, and upon our suggestion, however, he is to make an investigation; and if he finds that the work already done by the library can be used as a foundation for the work which he is now doing, it will be so used, and thus save the duplication of that work.

GEOGRAPHIC DISTRIBUTION.

A great deal of the work being done by the Department of Agriculture is thoroughly scientific and expert in its character, and it is extremely difficult for a layman unfamiliar with the subjects under investigation and the science relating thereto to form an intelligent and adequate opinion of the utility and value of the researches and investigations involved. It is not our purpose to discuss that phase of the work of the Department to any extent, but we will give from the examination of the Biological Survey an illustration of the intricate and perplexing character of the investigations to the nonscientific mind.

In answering a question relating to the duplication of work between the Bureau of Plant Industry and that of the Biological Survey relating to experimentation with plants in various localities by planting them in plots and demonstrating the questions of climate and soil with reference to feasibility of the production of the various plants, Doctor Merriam said:

Doctor MERRIAM. By getting together a number of species maps we are able to coordinate them and make what might be called a composite of them. We look for coincidences in the areas of distribution of mammals and birds and forest trees or desert shrubs, and when we find such coincidences we know that the area in question possesses some quality that other areas do not possess, and the inference is that it has some special crop adaptation. Then we try to find out what that crop adaptation is, to give the farmer the benefit of it.

The CHAIRMAN. In the case of the skunk areas, what does the discovery or the survey of these skunk areas indicate—what conclusion?

Doctor MERRIAM. That is hardly the right way to put it. It is not a survey of the skunk areas; but by studying the country we find out incidentally what areas the different species of skunks inhabit, along with the different species in other groups.

The CHAIRMAN. When you locate the skunk, of what use is it?

Doctor MERRIAM. When we delimit these areas we learn that they possess certain properties which differentiate them from other areas and adapt them to certain agricultural uses.

The CHAIRMAN. What agricultural uses are served by the discovery of the skunk area to which you called our attention? What is the use of that? What does it show? How is that of any benefit to the farmer?

Doctor MERRIAM. It is only one of a number of similar cases where, by mapping the distribution of many species, and by coordinating the maps, the resultant zone maps, with their subdivisions, are produced.

The CHAIRMAN. Then the information in relation to the skunk area is of no specific value until you can—

Doctor MERRIAM. By itself it is of comparatively little value.

The CHAIRMAN. Until you can assemble it with a lot of other facts?

Doctor MERRIAM. Yes; that is just the idea. These species maps are pieces of work that contribute toward a definite end.

The CHAIRMAN. Do you have any other wild animals that are, in point of territory, coterminous with the skunk?

Doctor MERRIAM. Yes; we have individual species in other groups. The skunks, as a group, inhabit the whole country—from the Atlantic to the Pacific. That map simply shows the areas occupied by the different species. In our economic work—

The CHAIRMAN. Let me get some further information on that matter, because this is a concrete question and I can understand it better. Of what consequence is it to find out the different species of skunks in that area. That is, how do you get any benefit from it? How do you get a concrete result that redounds to the benefit of

agriculture from ascertaining the existence of those different species? Of course it is an interesting fact, you know; but what I want to know is, of what value is the fact? What conclusions flow from it?

Doctor MERRIAM. As I said before, in the case of the zone work, the skunk map is simply a contributory piece of information that we want in connection with other pieces of information of the same kind, enabling us to map out the natural areas into which this country is divided for agricultural purposes. But in the case of many animals these detailed maps are themselves of great value, as in the case of the wolves and ground squirrels and prairie dogs and other noxious species.

The CHAIRMAN. Just show me that skunk map again, so I can get right at it, so as to get the idea.

Mr. SAMUEL. What do these different colors represent?

Doctor MERRIAM. They represent different kinds of ground squirrels that do great damage in the West.

The CHAIRMAN (returning to the skunk map). These orange-colored areas are the areas of the different species of skunks? Is that right?

Doctor MERRIAM. Yes. Each color patch on the map indicates the area inhabited by a different form of skunk. We will not call them all species, but forms.

The CHAIRMAN. Well, no matter whether it is form or species; but, at any rate, that is where he has his "local habitation and a name?"

Doctor MERRIAM. Yes; that is where he lives.

The CHAIRMAN. Are there any other animals whose local habitations are coterminous with that of the skunk?

Doctor MERRIAM. Yes; that is just it. There are many.

The CHAIRMAN. Where are they? Show me a map that you can superimpose on this one.

Doctor MERRIAM. We can not superimpose on this any single map that will agree in all its details, partly because of unworked country, but chiefly because we have no exactly comparable map of a group of animals covering practically the whole country and at the same time splitting up into the same number of "species" or "forms" inhabiting exactly the same areas; but we have maps that show these same areas as inhabited by species of other groups.

The CHAIRMAN. Where have you a map that shows practically the coterminous area that is inhabited by any other particular animal but the skunk, so that we can look at it and make the comparison? I suppose you have to have coterminous elements in reaching a generalization, have you not?

Doctor MERRIAM. Yes.

The CHAIRMAN. That is, if you have to assemble these various elements, the areas over which you make your experiments in gathering data should be coterminous. Otherwise, if you swing out here with an area and then out here with an area, you will throw your equation all out of alignment.

Doctor MERRIAM. We are studying the whole country, and by comparing a large number of individual species maps we see at a glance where the areas of coincident distribution are.

The CHAIRMAN. I understand that you have found the skunk practically all over the country.

Doctor MERRIAM. Yes; in one form or another. The skunks that inhabit the higher, more northern, and colder regions are very different in species from those that inhabit the warm, southern regions.

(608-610.)

While we understand the significance that may on general principles be inherent in this odorous representative of the animal kingdom, we feel bound to concede that we are still uninformed as to his importance as a potential factor in producing results sought to be accomplished by the application of geographic distribution to and for the country at large.

CHEMICAL LABORATORIES.

In the Bureau of Chemistry there is a general laboratory under the charge of Doctor Wiley. There are laboratories also in the Office of Experiment Stations, in the Bureau of Animal Industry, and in the Bureau of Soils.

Under existing conditions the lack of coordination upon the part of these different chemical laboratories is very aptly stated by Doctor Wiley as follows:

As it is, we are totally separate, just as though there was a wall between us. I do not know what Doctor Benedict is doing, and he has no idea of what I am doing. He may be doing what I am doing, for anything I know, or I may be doing what he is doing. (463.)

Each one of these laboratories requires heat and power, and when they are operated separately and independently it requires a heat and power plant for each.

Every laboratory has to have a head and executive staff (441), when, if all of the chemical laboratories could be united under one head instead of four, one head and one executive staff would be all that would be necessary. In the development of power we are advised that it costs anywhere from thirty to fifty per cent more to develop the same amount of power in, say, four to six independent plants than it would to develop the power in one plant. Each power and heating plant has to have at least an engineer and possibly an engineer and fireman, and if gathered together under one roof, where the heat and power could be supplied by one plant, these duplicate engineers and firemen could be dispensed with. This extra expense in the case of one Bureau, that of Soils, would be about \$2,735.

Whether these various chemical laboratories in the Department of Agriculture could all be consolidated in the Bureau of Chemistry and operated by one head and executive staff is, we are aware, a very tender and important question. We are not yet prepared to say that it would be wise to take them out of the bureaus of which they are now a part and consolidate them all under one bureau and make them a part of one laboratory. We are, however, clearly of the opinion that every business reason demands that they should be, as a physical proposition, gathered together under one roof and operated from one power plant, even though they maintain their separate identities as portions of the different bureaus. This will be accomplished, as we understand it, when these laboratories are removed to the new building or buildings which are being constructed for the use of the Department of Agriculture.

Under existing conditions such physical consolidation, we understand, would be impossible, the Bureau of Plant Industry, for instance, alone occupying some 18 or 19 different buildings, and all of the bureaus being distributed between anywhere from 3 and 5 to 16 and 18 different buildings, involving greatly increased cost of administration and a very perceptible loss of efficiency, for which the Department can not in any proper sense be charged.

We think that the executive heads of these various laboratories in the Department of Agriculture should be required to confer together at regular and frequent intervals in order that their work may be properly coordinated, that they may interchange ideas and accomplish such economies as are possible by eliminating any possible duplication of work. And in this connection it is proper to say that the Secretary of Agriculture, on the 24th day of December, 1906, by General Order 105, has created a committee on business methods which is entirely in line with these suggestions. (228, 229.)

This committee consists of the chiefs of Bureau of Animal Industry, Plant Industry, Forest Service, Bureau of Soils, and the disbursing

officer, and they are required to report to the Secretary "plans for new methods of routine business, changes in the system of bookkeeping, correspondence, filing, and office procedure generally, as well as to undertake specific duties within its field assigned to it by the Secretary."

The chief of each bureau, office, and independent division is required to appoint a committee to make definite recommendations with reference to the work of the bureau. Without reciting the order further in detail, it may be said that its purpose is to produce coordination, economy, and efficiency in the work of the Department.

If we were to make any suggestion with reference to the scope of the order, it would be that the Secretary, if he thinks it is wise, should include the chiefs of all of the bureaus, offices, and independent divisions in his committee on business methods. We wish to say, however, that we very heartily approve of the action of the Secretary in the issuing of this order, as we think beyond all question it is a very decided step in the right direction.

This order is one of the most important of the energetic and well-directed efforts of Secretary Wilson to promote the efficiency of his Department.

Attention should be called to the fact that there are a number of chemical laboratories outside of the Department of Agriculture. The Bureau of Standards, under the Department of Commerce and Labor, has a very extensive laboratory, which constitutes an annual charge of \$60,000 upon the Treasury. It takes up "almost every problem taken up in connection with standards or precise measurements involving the question of purity or composition of materials," the solution of which requires chemists of the highest ability, and it perfects methods for the determination of the purity of reagents and materials. (477, 478.)

In the Department of the Interior there is a laboratory that constitutes an annual charge of \$23,000 upon the Treasury, which investigates problems that may arise in geological work of the Survey, particularly in the line of investigating the mineral resources of the country, coal, and building material. For this service some \$250,000 has recently been appropriated. (478.)

In the Treasury Department they have a hygienic laboratory which, among other things, examines the drugs and chemicals to determine preservatives and adulterants in foods and drugs, both of which are done to a greater or less extent by the Bureau of Chemistry in the Agricultural Department. This Bureau constitutes a charge of \$28,150.

In the Internal Revenue Department they have a division of chemistry, which involves an annual cost of \$13,960. They report upon all samples submitted for expert examination and also examine oleomargarine, adulterated butter, renovated butter, filled cheese, and mixed flour, spirits, malt, and other fermented liquors and ciders, to determine their liability to tax. Similar examinations of the most of these articles for other purposes are being exhaustively made now by the Bureau of Chemistry in the Department of Agriculture.

The Director of the Mint has under his charge a laboratory which costs \$4,000 per annum. Their work consists largely in the examination and assay of coins with respect to determining their compliance with the legal requirements as to weight and fineness.

The Supervising Architect has a chemical laboratory which costs the Government annually \$16,240 to maintain, which is engaged in testing samples of material in connection with the contracts for public buildings under the control of the Department, and samples and supplies such as coal and oil furnished under the control of the office of the chief clerk, both of which investigations are, so far as we can learn, carried on on a very large scale by the chemical laboratory in the Geological Survey.

We have no doubt but that there is considerable duplication of work in connection with all these laboratories. We have not examined any outside of the Department of Agriculture except so far as we have received the information to which we have referred as a result of answers to our correspondence with the various Departments.

We think that the executive heads of all of these laboratories in these various Departments should be required to confer at frequent intervals, for the purpose of eliminating any unnecessary duplication of work and securing complete and efficient coordination, so far as possible, between them. If all of these laboratories, with those in the Department of Agriculture that are located in the city of Washington, could be located in one building, operated from a central heat and power plant, it would, beyond all question, reduce very materially the annual cost of maintenance, even though they were maintained as separate and distinct features of the various Departments to which they belonged. The saving can be estimated roughly at from \$20,000 to \$40,000 a year.

Doctor Wiley thinks that if the chemical work of the Government could be done by one bureau "it would be the greatest economy and efficiency in the world." (443.) He says that "all the chemical work of the English Government is directed from one laboratory;" (453) and says "It produces larger results per man and more uniform results," and that they get more units of work with the same amount of energy. (454.)

BUILDING FOR THE DEPARTMENT OF AGRICULTURE.

Our attention has been called to the character of the building now being constructed by the Department of Agriculture. The authority for the construction of this building is found in an act of Congress approved February 9, 1903 (315). This act directed the Secretary of Agriculture "to cause a suitable and commodious fireproof building, for the use and accommodation of the Department of Agriculture, including all of its bureaus and offices now occupying rented quarters in the District of Columbia, to be erected on grounds belonging to the United States in the vicinity of the present building, said building to be constructed in accordance with plans to be procured, based on accurate estimates, providing for the erection of *said building, complete in all its details*, as herein described, and within a total cost of not exceeding the sum herein stipulated." And he was further authorized, subject to appropriations to be made by Congress

to enter into contracts within the limit of cost hereby fixed * * * for the erection of *said building complete*, including heating and ventilating apparatus, elevators, and approaches, and the removal of the present building or buildings of the Department of Agriculture on said grounds.

The limit of the cost of construction of "*said building complete,*" including heating and ventilating apparatus, elevators, approaches, etc., was fixed at \$1,500,000.

Under this act we think it was clearly the contemplation of Congress that a suitable and commodious fireproof building for the purposes aforesaid should be completed, including heating and ventilating apparatus, elevators and approaches, within the limit of \$1,500,000.

The sum of \$1,410,181.40 has been either expended or contracted for in connection with the erection of this building. Instead of erecting a single building within the limit of a million and a half, finished as above indicated, two segments of what will later be a completed building quadrangular in form, have been erected. These segments have been so constructed that they can be utilized by the Department for all practical purposes precisely the same as though they were not segments of a contemplated quadrangular building, but were intended to be and remain complete as they are now designed.

We think, however, that Congress contemplated that *one building* to accommodate the whole Department with all of its bureaus was to be erected within the limit of a million and a half of dollars. The two segments will constitute two corners of the contemplated quadrangle. The testimony before us shows that these segments when completed would have been practically adequate to have provided for all of the wants of the Department as they existed at the time of the passage of the act, so that so far as accommodations are concerned, the Department would undoubtedly be provided for within, in that respect, the letter and the spirit of the act limiting the cost. While we think it is true that the plan adopted, which clearly contemplates additions in the future thereto, is undoubtedly the wise and feasible method of providing for the wants of this Department as they may from time to time develop by reason of its rapidly increasing size, we can not say that the two segments of a building are a compliance with the provisions of an act which simply provided for the erection of one building, which we understand was to be a "building complete."

KEEP COMMISSION.

It is proper for us to acknowledge our indebtedness to the Keep Commission. This Commission was appointed June 2, 1905, and consists of Hon. Charles H. Keep, Assistant Secretary of the Treasury; Hon. Frank H. Hitchcock, First Assistant Postmaster-General; Hon. Lawrence O. Murray, Assistant Secretary of Commerce and Labor; Hon. James R. Garfield, Commissioner of Corporations; and Mr. Gifford Pinchot, Forester, Department of Agriculture, and Chief of the Forest Service.

In the prosecution of their work they have appointed a large number of committees, consisting of about seventy men in the Government service. The Commission and its committees have been at work since their appointment investigating the Government service in Washington. They have made upon the various branches of the service up to date something like thirteen different reports to the President, all of which are the result of very careful and thorough investigation, and contain very important and valuable recommendations with reference to the service and the changes necessary therein in order to promote its efficiency and secure economy. Our judgment is that

the work of this commission and these committees, performed without any additional compensation and largely out of office hours, will prove of very great value to the Government service provided its recommendations are adopted. It has been gratifying to note as we have come in contact with its personnel, the ability, zeal, and disinterested public spirit manifested by them in the prosecution of their work.

CONCLUSION.

This report must necessarily be somewhat imperfect and incomplete, partly on account of the fact that we have not had adequate time to make a thorough and effective investigation into all of the details connected with the Department, and partly by reason of the fact that we deem it wiser to call attention to a number of salient and important features and not to burden the report with detail, less material in its character, which, if time and space warranted, might well be entitled to notice and mention.

We take great pleasure in stating that the Secretary of Agriculture has cheerfully and promptly adopted every suggestion that has been made heretofore looking toward the improvement of the service of his Department. The principal feature that we feel like emphasizing in connection with the general policy of the Department is the necessity of a very close and intimate coordination between the various organizations contained therein. There is necessarily very close articulation between the work of the various organizations, and there is a constant tendency that the work of one may overlap and duplicate that of the other. We are aware that the Secretary and his executive force are making every effort to eliminate this feature and guard against difficulties from that source; but in a department of this character, where its work is very largely scientific and many of its investigations involve elements that are more or less involved in all of the investigations, the tendency to duplication is continuous and persistent, and perhaps inevitable; nothing but constant and vigorous executive administration and sometimes arbitrary action by the Secretary can effectively keep it in check.

Our examination of the Department has been facilitated by the Secretary and all of the officers under his charge upon whom we have had occasion to call. We are under especial obligation to Mr. Zappone, chief of the Division of Accounts and the disbursing clerk, for his efficient, energetic, and faithful assistance in aiding us in the prosecution of our investigations. He has not only brought his own division up to a high standard of efficiency, but he has a very accurate and intimate practical knowledge of the operations of the whole Department, and this knowledge has been freely and cheerfully placed at our disposal, and we are very much indebted to him for his work.

In the case of each of the heads of the bureaus, divisions, and offices we requested them to state as best they might the concrete value to the country of the work being done by their respective bureaus, and so far as was practicable each of the witnesses gave from his own point of view his judgment of the utility of the work in which he was engaged in concrete and specific form.

We close this report with an analysis of the statements made by these various officers, which will show from the standpoint of the Department the annual value of the work in which it is engaged to the public.

Summary of the estimated annual value of the Department of Agriculture to the general public as given by the chiefs of the various bureaus and divisions thereof in the concrete cases mentioned by them in their testimony before the Committee on Expenditures in the Department of Agriculture.

WEATHER BUREAU.

The annual value of cold-wave and frost warnings to affected industries is estimated at.....	\$10,000,000	
(See p. 1026.)		
Storm warnings on our (Great Lakes and seaboard) (as well as great saving of human lives).....	10,000,000	
(See p. 1031.)		
Flood warnings and river-stage predictions result in a saving of more than \$5,000,000 worth of property each year.....	5,000,000	
(See p. 1033.)		
Daily temperature changes and weather forecasts save annually to householders, farmers, manufacturers, shippers, etc., perhaps \$5,000,000.....	5,000,000	
(See p. 1034.)		\$30,000,000

BUREAU OF SOILS.

The estimated value of the information furnished by the Bureau of Soils during the past year, in the reports on soil surveys, of the adaptation of soils to crops, and the methods of handling soils to produce the largest returns, is about.....	\$6,000,000	
(See p. 350.)		
The estimated annual value of the tobacco work done by the Bureau of Soils in various States, when the industries and new methods shall be fully established, is about.....	2,000,000	
(See p. 352.)		
The estimated annual value of the work done by the Bureau of Soils on the study of alkali problems, and the practical methods of reclaiming alkali land, when fully developed, is about.....	1,000,000	
(See p. 353.)		9,000,000

BUREAU OF PLANT INDUSTRY.

Peach leaf curl: Annual saving resulting from spraying as recommended by the Bureau as the result of its investigations is estimated at.....	\$1,000,000	
(See p. 272.)		
Wilt of sea island cotton: Annual saving as a result of the introduction of resistant types, is estimated at.....	300,000	
(See p. 272.)		
Wilt disease of cowpea: Estimated annual saving as a result of the introduction of resistant type (The Iron).....	100,000	
(See p. 272.)		
Preservation of wood: Estimated annual saving as a result of improvement in methods of preservation introduced by the Bureau.....	100,000	
(See p. 273.)		
Pear blight: Method of control introduced by the Bureau; annual saving estimated at.....	1,000,000	
(See p. 274.)		
Production of cold-resistant oranges: estimated annual money value as soon as they come into general bearing.....	250,000	
(See p. 274.)		
Tangerine orange, grapefruit, and pineapple: The tangerine orange, the tangerine grapefruit, and the new species of pineapples will be worth annually at least.....	150,000	
(See p. 275.)		
Improvements in uniformity and types of tobacco: The estimated annual value of improvements in the uniformity of tobacco from methods of saving and cleaning seed, and the new types of tobacco introduced is.....	400,000	
(See p. 276.)		

18,000 cultures of nitrogen-fixing bacteria distributed for the year 1906, estimated cash returns	\$200,000
(See p. 289.)	
Value of last year's crop of durum wheat, introduced by the Department, was	25,000,000
(See p. 294.)	
Improvements in handling of citrus fruits: Reduction in losses in transit from methods introduced by the Department, estimated annually	400,000
(See p. 298.)	
Value of home-grown sugar-beet seed and methods introduced by the Department, estimated annually at	200,000
(See p. 298.)	
	\$29,100,000

BUREAU OF ANIMAL INDUSTRY.

Meat inspection: Estimated annual value of market in civilized countries requiring government inspection	\$25,000,000
(See p. 212.)	
Dipping sheep for scabies, estimated annual saving	1,000,000
(See p. 216.)	
Dipping cattle for scabies, estimated annual saving	600,000
(See p. 216.)	
Southern cattle marketed during closed season, estimated annual value	1,000,000
(See p. 219.)	
Tick eradication, estimated annual saving	2,000,000
(See p. 219.)	
Inspection of vessels carrying live stock, estimated annual saving on animals and annual saving on insurance	1,000,000
(See p. 215.)	
Eradication of Maladie du coit in Iowa, Nebraska, and South Dakota, estimated saving	50,000
(See p. 219.)	
Import regulations and the enforcement of the same by the Department, preventing outbreaks of pleuro-pneumonia, saving annually at least	2,000,000
(See p. 216.)	
Scientific investigations of parasitic diseases of sheep, estimated annual saving	500,000
(See p. 225.)	
Poultry-breeding experiments, increased egg production, estimated annual value	100,000
(See p. 168.)	
Investigations on fecundity of sows, estimated annual value	100,000
(See p. 225.)	
Dairy investigations of milk, butter, and cheese result in an annual saving of	3,000,000
(See p. 225.)	
Blackleg vaccine, 1,285,000 doses prepared, valued by commercial houses at 12½ cents per dose	160,625
(See p. 157.)	
Without its use 20 per cent of young cattle die of blackleg. With its use 0.44 per cent die, saving at \$15 per head	3,107,700
(See p. 157.)	
New treatment of milk fever by instrument recommended in Farmers' Bulletin No. 206 has reduced the mortality from 70 per cent to 3 per cent	3,350,000
(See p. 159.)	
Actinomycosis, treatment with specific	250,000
(See p. 224.)	
Tuberculosis; ophthalmia; necrotic stomatitis; anthrax; infectious abortion prevention	1,500,000
(See p. 224.)	
Chicken diseases	200,000
(See p. 225.)	
Foot rot of sheep and cattle	150,000
(See p. 224.)	

Eradication of surra from the United States, based on the fact that this disease is usually fatal, causing death in a large percentage of all horses and cattle in the infected countries. (See p. 216.)	\$1, 000, 000
Eradication of Malta fever in goats, and the consequent prevention of this disease in man. (See p. 216.)	500, 000
Prevention of Texas fever, as outlined in Farmers' Bulletin No. 258. (See p. 159.)	3, 812, 500
	<hr/> \$50, 380, 825

BUREAU OF CHEMISTRY.

The annual saving to the public resulting from the investigation of sorghum sirup is estimated at. (See p. 434.)	\$1, 000, 000
The annual saving resulting from the investigations of the sugar beet and the thousands of analyses made is estimated at. (See p. 435.)	1, 000, 000
The investigations of the methods of making pure sirup have greatly increased the industry in Georgia and other States. The estimated annual value is. (See p. 436.)	100, 000
The utilization of waste in making denatured alcohol, it is estimated, will save annually. (See p. 437.)	1, 000, 000
The studies which were made by this Department abroad, and the methods employed in securing the proper yeast for making pure cider is estimated annually. (See p. 437.)	100, 000
The collaborative work in the study of effect of environment upon the quality of sweet corn, it is estimated, saves annually about. (See p. 459.)	250, 000
The collaboration with the Treasury Department in the control of sugar polarization has resulted in an annual saving of. (See p. 459.)	250, 000
The studies made by the Bureau of Chemistry of the effect produced upon health by the addition of preservatives and colors to foods has resulted in an annual saving of about. (See p. 464.)	5, 000, 000
The exclusion of adulterated and misbranded foods and drugs from this country results in an annual saving of about. (See p. 467.)	1, 000, 000
The investigations made of the purity of products and the reagents used in the Department of Agriculture, it is estimated, result in an annual saving of. (See p. 469.)	5, 000
The investigations of the growth of cassava and the methods of utilizing the starch, dextrin, etc., result in a per annum saving of. (See p. 470.)	50, 000
The investigations made on tanning materials, on leather, on paper used for government publications, on inks, and the distillation of wood result in an annual saving of about. (See p. 471.)	500, 000
	<hr/> 10, 255, 000

OFFICE OF PUBLIC ROADS.

The use of six engineer students in building roads, it is estimated, results in a per annum saving of. (See p. 583.)	\$16, 000
The building of object-lesson roads results in a per annum saving of. (See p. 584.)	436, 175
The testing of road materials effects a per annum saving of. (See p. 587.)	232, 000

The encouragement of the use of split-log drag in the improvement and maintenance of earth roads has resulted in a per annum saving of.....	\$20,000	
(See p. 586.)		
The burnt-clay road has resulted in an annual saving of about.	19,000	
(See p. 587.)		
The collection of information as to the mileage of improved and unimproved roads and the dissemination of the same results in a saving, it is thought, annually of	150,000	
(See p. 590.)		
		\$873,175

BUREAU OF ENTOMOLOGY.

The money saved annually from the introduction of the Australian ladybird beetle will be about.....	\$5,000,000	
(See p. 375.)		
The annual saving from the importation of the black scale parasite is estimated at	250,000	
(See p. 375.)		
The general work done upon cotton insects of all kinds results in an annual saving to the country of not less than..	5,000,000	
(See p. 381.)		
The saving value of the work on insects injurious to the great field and forage crops is estimated annually at about.....	9,500,000	
(See p. 384.)		
The saving effected by the use of measures based upon the work of the Bureau of Entomology against insects affecting vegetable crops and stored products is estimated at	3,000,000	
(See p. 384.)		
		22,750,000

BUREAU OF BIOLOGY.

Work on food habits of birds and mammals and methods for the destruction of farm pests saves annually to the public about.....	\$750,000	
(See p. 621.)		
The annual benefit of the work of the Bureau of Biology on wolves and coyotes is estimated at about.....	1,500,000	
(See p. 624.)		
Enforcing laws prohibiting importation of certain destructive animals saves to the public annually about.....	750,000	
(See p. 625.)		
		3,000,000

FOREST SERVICE.

The estimated value of the production of timber and forage and the maintenance of stream flow, through the use, protection, and improvement of the national forests by the Forest Service, is at least 2 per cent a year on \$1,400,000,000, the estimated value of the reserves, or \$28,000,000. Since the latter are increasing in value not less than 10 per cent yearly, this estimate is most conservative	\$28,000,000	
(See p. 788.)		
Improved methods of turpentine orcharding, resulting in estimated annual saving of the difference between the new method and the old of not less than	3,500,000	
(See p. 802.)		
Improved methods in forest management by States and private owners in cooperation with the Forest Service result in an annual saving of at least 3 per cent of the annual cut of one hundred billion feet, which at \$3 per M is	9,000,000	
(See p. 785.)		
The annual saving in young growth and commercial timber by prevention of fire is at least.....	20,000,000	
(See p. 794.)		
The saving of wood through economy in manufacture and use due to methods introduced by the Service is not less annually than.....	5,000,000	
(See p. 794.)		

New timbers brought into use through the work of the Service are worth annually.....	\$5,000,000
(See p. 794.)	
Preservation treatment of timber through Service methods saves annually at least.....	6,000,000
(See p. 794.)	—————\$76,500,000

MISCELLANEOUS BUREAUS.

The Office of Experiment Stations and the Bureau of Statistics report that, owing to the varied and technical character of their work, it is impracticable, on the testimony submitted by them, to express the utility of their bureaus to the public in dollars and cents.

EXECUTIVE OFFICES.

The Office of the Secretary, the Division of Publications, the Division of Accounts and Disbursements, and the Library, being executive offices, can not show a direct saving to the general public, but these offices have all contributed to the large saving mentioned above as having been made by the various scientific bureaus and divisions.

OUTSIDE COOPERATION.

The benefits to agriculture of the Department of Agriculture, and of the institutions with which it is in cooperation, have combined to change farming and country home making from a dull vocation to a bright business, coming yearly more and more under scientific knowledge. The agricultural colleges, the State experiment stations, the State departments of agriculture, the farmers' institutes, and the numerous national, State, and local agricultural and cooperative associations, with an expenditure greater than the Federal Department, have also added very greatly to the sum of American farm products and to the support of a strong country people.

RECAPITULATION.

Weather Bureau	\$30,000,000
Bureau of Soils	9,000,000
Bureau of Plant Industry.....	29,100,000
Bureau of Animal Industry	50,380,825
Bureau of Chemistry	10,255,000
Office of Public Roads.....	873,175
Bureau of Entomology	22,750,000
Bureau of Biology.....	3,000,000
Forest Service.....	76,500,000
	—————
Grand total	\$231,859,000

The following table shows the cost of the Department of Agriculture since 1839:

Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.	Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
1839.....	\$1,000.00	\$1,000.00		1874.....	\$257,630.00	\$233,765.78	\$23,024.22
1840.....				1875.....	337,380.00	321,079.83	16,300.17
1841.....				1876.....	240,120.00	198,843.04	50,276.36
1842.....	1,000.00	1,000.00		1877.....	194,686.96	188,206.19	6,480.77
1843.....				1878.....	198,640.00	197,634.94	1,005.06
1844.....	2,000.00	2,000.00		1879.....	206,400.00	206,360.00	40.00
1845.....	2,000.00	2,000.00		1880.....	199,500.00	198,361.72	1,138.28
1846.....	3,000.00	3,000.00		1881.....	275,460.31	267,608.84	^b 7,851.47
1847.....	3,000.00	3,000.00		1882.....	363,011.05	354,482.39	^c 8,528.66
1848.....	4,500.00	4,500.00		1883.....	456,396.11	438,941.72	^d 17,454.39
1849.....	3,500.00	3,500.00		1884.....	^a 416,641.13	413,618.09	3,023.04
1850.....	5,500.00	5,500.00		1885.....	^a 655,930.25	558,934.89	^e 96,995.36
1851.....	5,500.00	5,500.00		1886.....	^a 677,073.22	519,196.11	158,777.11
1852.....	5,000.00	5,000.00		1887.....	^a 657,641.81	628,287.14	29,354.67
1853.....	5,000.00	5,000.00		1888 ^f	1,027,219.06	1,011,282.62	15,936.44
1854.....	10,000.00	10,000.00		1889.....	^a 1,334,480.60	1,033,590.22	^g 100,890.38
1855.....	^a 50,000.00	50,000.00		1890.....	^a 1,170,139.11	971,823.62	^h 198,315.49
1856.....	30,000.00	30,000.00		1891.....	^a 1,372,049.21	1,266,277.36	105,771.85
1857.....	75,000.00	75,000.00		1892.....	^a 2,303,655.75	2,253,262.29	50,393.46
1858.....	63,500.00	63,157.25	\$342.75	1893.....	2,540,060.72	2,355,430.25	184,630.47
1859.....	60,000.00	60,000.00		1894.....	2,603,855.58	1,977,469.28	ⁱ 626,386.30
1860.....	40,000.00	40,000.00		1895.....	ⁱ 506,015.00	421,030.38	85,884.62
1861.....	60,000.00	60,000.00		1896.....	2,584,013.22	2,094,016.42	489,996.80
1862.....	64,000.00	63,704.21	295.79	1897.....	2,448,763.53	2,348,512.98	100,250.55
1863.....	80,000.00	80,000.00		1898.....	2,467,902.00	2,425,510.44	42,391.56
1864.....	199,770.00	189,270.00	10,500.00	1899.....	2,829,702.00	2,827,795.65	28,899.27
1865.....	112,304.05	112,196.55	107.50	1900.....	3,006,022.00	2,947,603.42	58,418.58
1866.....	167,787.82	167,787.82		1901.....	3,304,265.97	3,239,137.39	65,128.58
1867.....	199,100.00	199,100.00		1902.....	3,922,780.51	3,902,675.79	20,104.72
1868.....	279,020.00	277,094.34	1,925.66	1903.....	5,015,846.00	4,734,230.84	281,615.16
1869.....	172,593.00	172,593.00		1904.....	5,025,024.01	4,969,311.64	55,712.37
1870.....	156,440.00	151,596.93	4,843.07	1905 ^j	6,094,540.00	5,881,939.57	215,606.64
1871.....	^a 188,180.00	186,876.81	1,303.19	1906 ^k	7,175,690.00	6,000,327.35	1,175,362.15
1872.....	197,070.00	195,977.25	1,092.75	Total.....	\$65,438,391.49	\$60,110,836.13	^m 5,415,652.31
1873.....	202,440.00	201,321.22	1,118.78				

^a Including deficiency appropriation.

^b Includes \$1,646.45 of the appropriation for reclamation of arid lands, carried to the fiscal year 1882.

^c Includes \$85.26 of the appropriation for reclamation of arid lands and \$3,530.85 of the appropriation for experiments in the manufacture of sugar, carried to the fiscal year 1883.

^d Includes \$7,656.13 of the appropriation for reclamation of arid lands, carried to the fiscal year 1884.

^e Includes \$93,192.27 of the appropriation for Bureau of Animal Industry and \$2,970.82 of the appropriation for quarantine stations, carried to the fiscal year 1886.

^f For the fiscal year 1888 including the sum of \$8,000 appropriated for deficiencies in the appropriation for experiments in the manufacture of sugar for the fiscal years 1887 and 1888, of which \$7,927.50 was disbursed and \$72.50 remained unexpended.

^g Includes \$12,923.25 of the appropriation for botanical investigations and \$58,364.76 of the appropriation for experiments in the manufacture of sugar, carried to the fiscal year 1890.

^h Includes \$188,974.69 of the appropriation for Bureau of Animal Industry, carried to the fiscal year 1891.

ⁱ Includes \$7,891.94 for statutory salaries of the year 1894.

^j For the years 1905 and 1906 the figures given represent payments made to close of June 30, 1906, the accounts for those years being still open at the date of this revision.

^k This total is the amount actually appropriated for the various fiscal years, with the exception of \$37,604.70 appropriated July 13, 1868, to cover a number of expenditures made in previous years. It does not include an aggregate sum of \$369,344.48 reappropriated from the unexpended balances of several fiscal years. (See foregoing notes.)

^l Does not include \$37,604.70 which was disbursed during several years, and covered by an appropriation of like amount, made July 13, 1868. (See note 5.)

^m Does not include an aggregate sum of \$369,344.48 reappropriated from the unexpended balances of several fiscal years. (See foregoing notes.)

VIEWS OF THE MINORITY ON THE SUBJECT OF MOUNT WEATHER.

Since the fall of 1902, and during the fiscal year 1902-3, under the direction of the Weather Bureau of the Department of Agriculture, what is called by Professor Moore a "research institution," costing, up to January 10, 1907, \$161,093.26, and consisting of a lot of something like 90 acres, with 8 buildings, and a kite shelter thereon (1081), has been constructed at Mount Weather, in Virginia, something like 60 miles from the city of Washington.

The appropriation bill for the Department of Agriculture for the fiscal year 1903 contained, among other things, the following provision:

For the purchase of sites and erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses; plans and specifications to be prepared, and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstaffs, and storm-warning towers to properly equip these stations, fifty thousand dollars.

When this "research institution" is completed it will cost, according to the judgment of Professor Moore (954), \$250,000, and from \$25,000 to \$30,000 annually to maintain and operate (1017).

According to the testimony of Professor Moore the expenditure that has been made up to date was incurred under and by virtue of the authority of this and similar provisions in the appropriation bills. He testifies:

The CHAIRMAN. Now, do I understand that the authority that you had five years ago is identical with the authority that you now propose to read?

Professor MOORE. Yes, sir.

The CHAIRMAN. Then it went no further, but did go as far?

Professor MOORE. Yes.

The CHAIRMAN. If that is the case, what you read now will cover the whole ground, so that we will know exactly on what basis and under what circumstances the expenditure was incurred?

Professor MOORE. Yes.

He was referring to a provision in the appropriation bill identical with the one above quoted. The chairman had previously asked Professor Moore to give the character of the authority that conferred upon the Department the power and authorized them to go to the extent of creating an ultimate expense of \$250,000, and it was in following up this inquiry that Professor Moore gave the provision in the appropriation bill above quoted as his authority for the expenditure.

In thus relying upon this provision in the appropriation bill as the authority for this expenditure of \$161,093.26 it appears that Professor Moore was in error, because it turns out to be the fact that under that appropriation and appropriations reading like that only \$76,251.23 was expended, while under an appropriation entitled "General expenses, Weather Bureau," \$84,842.03 was expended (1091), so that there were two provisions of the appropriation bills that were drawn upon from time to time for the purpose of making this expenditure.

In this connection we quote the opinion of the Comptroller upon the construction of the appropriation relied upon as the authority for the building of this "research institution."

You say relative to the second branch of your questions:

"In the prosecution of the investigations of this committee we have had our attention called to and examined in detail the construction of what is called by Professor Moore the 'Research Institution' at Mount Weather. The construction of this institution was begun in the fall of 1902, and has been continued from time to time until the present date. The testimony of Professor Moore shows that the institution which has been inaugurated contemplates ultimately an expenditure of \$250,000 and of \$25,000 a year for maintenance."

And you then propound the following questions:

"I wish to call your attention to the various appropriation bills for weather stations for the years 1903, 1904, 1905, and 1906, and ask you:

"(1) Whether or not, under the terms of those appropriations, the construction and development of such an institution were authorized?

"(2) Please advise me whether or not, in your opinion, the appropriation reading as follows: 'For the purchase of sites and erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations, \$50,000,' does or not contemplate at least six completed stations, including their instruments, furniture, supplies, flagstuffs, and storm-warning towers.

"(3) Please state whether or not, under that appropriation, the Department of Agriculture would be authorized in partially constructing any research institution. Or, in other words, whether it would be authorized in beginning the development of a plant which was ultimately to cost \$250,000 and has already cost \$140,000, and which in the process of its development has been added to from time to time since the fall of 1902 up to date, with the exception of 1907, under appropriations reading like that above quoted. It should be stated that something like \$60,000 of the \$140,000 was expended under the appropriation entitled 'General expenses, Weather Bureau.'

"Please state whether or not, in your opinion, the Department of Agriculture would be authorized to use all of said sum of \$50,000 in the purchase of sites and the construction of buildings, using nothing for the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip the stations, but using sums for that purpose (the last-noted purpose) from other appropriations and thus leave a larger sum on hand under the appropriation inquired about, for purchase of sites and construction of buildings.

"Inasmuch as the testimony of Mr. Jacobs before our committee might unexplained, leave the inference that you had had a conference with Mr. Timme, and advised the construction adopted by Mr. Jacobs, will you be kind enough to state what conference, if any, you had with Mr. Timme, and what, if anything, you said to him in relation to said construction?"

These questions involve a construction of the acts appropriating for sites and the erection of Weather Bureau observatories, or stations, for the fiscal years 1903, 1904, 1905, and 1906. These appropriations read:

"For the purchase of sites and erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations, fifty thousand dollars." (For fiscal year 1903.)

"For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations: *Provided*, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, fifty thousand dollars." (For fiscal year 1904.)

"For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations: *Provided*, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, forty-eight thousand dollars." (For fiscal year 1905.)

"For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations: *Provided*, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau, outside of the District of Columbia: *And provided further*, That a portion of the Federal building site at Springfield, Illinois, fronting ninety feet on Monroe street and extending back at that width one hundred and sixty feet along Seventh street to paved alley, may be used as a site for one of the five buildings proposed above, and is hereby transferred to the Department of Agriculture for that purpose, fifty-three thousand dollars." (For fiscal year 1906.)

As a preliminary to answering your several questions last propounded, it does not appear difficult to arrive at the intent of Congress in this series of appropriations providing that a given number of Weather Bureau stations be erected, including furnishing of the same with instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip them, out of each of the appropriations above set out. For instance, take the appropriation set out in your letter, for the fiscal year 1903—the one used to erect the first building at Mount Weather. It carries an appropriation of \$50,000 and directs, in plain and unmistakable terms, that these buildings shall be erected out of this \$50,000 for use as Weather Bureau observatories, including the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers—which, when equipped, furnished, and manned, constitute weather stations. The direction of Congress is to erect, out of the appropriation in question, six buildings, equipped, furnished, and provided with proper instruments, thus forming a weather station. I do not deem it a question of great importance whether one or more buildings are erected at weather stations provided for by these appropriations. Whether one or more buildings are erected, the observatory must be complete for the purpose for which the appropriation is made—namely, a weather station—and have the proper instruments, storm-warning towers, and furniture appropriate and necessary for the character of weather stations contemplated by these appropriations. The character of weather station contemplated is such as to cost, on the average, one-sixth of \$50,000.

I understand that buildings have been erected each year at Mount Weather, commencing with the appropriation for 1903; that the sites and buildings so far erected, with furniture and instruments, have cost \$140,000; and when the research institution or the weather station at Mount Weather is completed under the present plans, it will cost \$250,000.

In answer to your first question I have the honor to say that under existing law there has been no authority for the construction or development of the station at Mount Weather as constructed or proposed to be developed.

I answer your second question in the affirmative.

I answer your third question in the negative.

From what has been above said, it is plain that where \$50,000 has been appropriated to erect a given number of buildings, and to equip them as weather stations by furnishing them and by providing them with proper instruments, etc., it is not a legal use of this appropriation to expend it all upon the buildings and draw upon other appropriations to furnish the buildings and provide the instruments necessary therefor.

In conclusion, permit me to say that I have at no time, to the best of my recollection, had any conversation with Mr. Timme, formerly Auditor for the

State and other Departments, relative to the proper use of the appropriations above set out. I am confirmed in this recollection by the fact that until I examined your memoranda as to how these appropriations had been used, I had no knowledge whatever as to their use and no knowledge as to the extent of the plant at Mount Weather or when erected.

Respectfully,

R. J. TRACEWELL, *Comptroller*.

In this opinion of the Comptroller we fully concur.

It will be noted that in the appropriation bills for 1903, 1904, 1905, and 1906, the provision was that "not less than six," or "not less than five," as the case may be. In the year 1907, in the provision for this purpose, the language "not less than" was changed to "not more," changing a provision which specifically and distinctly limited the discretion of the Secretary of Agriculture or the Weather Bureau to one that left it without any limit and made it entirely possible for the Bureau to expend all of the appropriation upon one station if it saw fit to do so. This change, in our judgment, was unwise and unjustifiable, and ought not to have been made and ought not to be followed in any other bills.

We agree with the Comptroller that the building and development of the "research institution" at Mount Weather under these conditions and under these appropriations was wholly unauthorized by law. We agree with the Comptroller that, taking the appropriation, for instance, for 1903 as an illustration, that it was the duty of the Bureau to complete six stations, which included the purchase of sites and the erection of not less than six buildings, and the "purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations" within the limit of \$50,000. On the contrary, the Weather Bureau has never used any of the sum appropriated for the purchase of "instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations" for that purpose, but has made the sums that have been necessarily used for the purchase of instruments, furniture, supplies, flagstuffs, and storm-warning towers to properly equip these stations, a charge upon another appropriation, that of "General expenses, Weather Bureau," which also authorizes these purchases (bill, p. 3). (1079.)

It appeared that it cost sums varying from \$2,500 to \$5,000 (1078), according to the importance of the station, to purchase "instruments, furniture, supplies, flagstuffs, and storm-warning towers."

In making our analysis, for the purpose of showing the manner in which these appropriations have been utilized, we use the smallest sum for equipping and furnishing, \$2,500, as a basis.

Under the appropriation for the fiscal year 1903, "Buildings, Weather Bureau," which provided for not less than six completed stations, we find that five beside Mount Weather were constructed, and that there was expended in the construction at Mount Weather during that fiscal year \$17,077.03 under that appropriation, more than \$4,000 more than was expended for any other station during the years 1903, 1904, 1905, 1906, and 1907. With the other five stations and the \$17,077.03 used at Mount Weather, the appropriation of \$50,000 was exhausted, leaving nothing for equipment, furniture, etc. At the minimum rate at least \$12,500 should have been used out of this appropriation for that purpose. If it had been, and the other five stations had been constructed, it is clear that there would have been

a very small sum for the Mount Weather "research institution." (1074.)

Instead of using it from the appropriation out of which it should have been taken, it was taken from another appropriation, "General expenses, Weather Bureau," for the purpose, we infer, of leaving more in the appropriation to be used for Mount Weather construction.

Under the appropriation for the fiscal year 1904, not less than five stations with instruments, furniture, etc., were to be completed. Four stations were built and \$13,347 expended on Mount Weather, thus exhausting the appropriation of \$50,000, nothing being expended under that appropriation for equipment and furniture, when at the minimum rate at least \$10,000 should have been expended. This \$10,000, as before, was taken from the appropriation for "General expenses, Weather Bureau." (1074.)

In 1905 not less than five stations, sites, buildings, instruments, furniture, etc., were to be completed, within a limit of \$48,000. Three were constructed and repairs on two were made, the repairs aggregating nearly a thousand dollars, and \$21,231.55 expended on Mount Weather, leaving an unexpended balance of \$198.89. Nothing was expended from this appropriation for instruments, furniture, etc., when at least \$7,500 should have been, that sum being taken, as before, from "General expenses, Weather Bureau." (1077.)

In 1906 not less than five stations—sites, buildings, instruments, furniture, etc.—were to be completed within a limit of \$53,000. Five stations were constructed and \$12,795.41 expended on Mount Weather, leaving an unexpended balance of \$251.57. Nothing was expended from this appropriation for equipment, furniture, etc., when \$12,500 at least should have been, that sum being taken, as before, from the appropriation "General expenses for Weather Bureau." (1078.)

We agree with the Comptroller that this use of this appropriation was "not a legal use." It is very clear that the sums that were necessary for the purchase of instruments, furniture, etc., should have been taken from this appropriation, as the weather stations were constructed, as otherwise they were not completed under that appropriation as required by law. If the sums that were required for that purpose had been so taken, it is quite clear that there would have been very little left for the development of the "research institution" in Mount Weather and that, we infer, as we have stated, is the reason why these items were made a charge upon another appropriation.

We think it is our duty here to call attention to the fact that we made an effort to ascertain why it was that the officers whose duty it was to audit the disbursements of the Department of Agriculture allowed the disbursement of this relatively large sum of money without authority of law. We called Mr. S. R. Jacobs, Chief of the Miscellaneous Division, Office of the Auditor for the State and other Departments.

It seemed that all of these disbursements hereinbefore referred to succeeded in getting through his office without notice or question until about a year and a half ago (1044), when he looked into the matter and found that a considerable portion of the money under the appropriation "Buildings, Weather Bureau," was being spent on Mount Weather (and that, we infer, as we have stated, is the reason the entire matter very carefully and discussing it with the head of the office, Colonel Timme, who was then Auditor, they came to the

conclusion that the law undoubtedly authorized the Secretary of Agriculture to spend the money in that way if he saw fit to do so (1044). At another stage of his examination he stated that he thought the Auditor had talked the matter over with the Comptroller (1052).

This seems to have been an error, as the Comptroller states that to the best of his recollection he never had any conversation with Mr. Timme and never knew anything about the manner in which the appropriations had been used until he examined the memoranda furnished him by this committee. (1142.)

It will be observed that the Comptroller squarely disagrees with the auditing office as to the proper construction to be placed upon the law. We concur in the opinion of the Comptroller, but the fact that the auditing office acted upon another construction indicates that there is room for an honest difference of opinion as to the proper construction; and as these accounts were allowed by the Auditor without question before, as well as after, a consideration of the authority, the disbursing officer was clearly justified in paying them under the assumption that they were proper disbursements. He could hardly have been expected to do otherwise, and in our judgment there has been nothing disclosed before us which would justify subjecting him to any embarrassment or loss on account of these disbursements, which were made by him without any knowledge of their illegality. He relied, and had a right to rely, upon the action of the auditing office, and his disbursements were made in good faith. Upon Mr. Jacobs being pressed for the reasons why he reached the conclusion that the expenditures as made were justified under this appropriation, he stated:

This appropriation is placed in the hands of the Secretary of Agriculture. It is in the very broadest terms and gives him the very widest discretion, and the accounting officers would not attempt to go into a matter of that kind. It is presumed that the Secretary of Agriculture has followed the law and exercised his discretion in a legal manner unless something appears to indicate that he has not done so. (1051.)

And again, in restating his reasons, he says:

These appropriations for the Department of Agriculture are unusual in that they give the Secretary of Agriculture the very widest authority, much more so than in case of the other Departments. (1062.)

We do not find ourselves able to agree with Mr. Jacobs. Instead of the appropriation in question being in "the very broadest terms," and "giving him the very widest authority," the precise contrary of this is the fact. The appropriation expressly limits the Secretary of Agriculture to the construction, for instance, of at least six stations, with site, buildings, instruments, etc., completed. In so far as he constructed six completed stations of that character, unquestionably he had the discretion as to where they were to be located and their general character and size, but he had absolutely no discretion and no right to construct and complete less than six.

This construction is emphasized and accentuated by the proviso that is added in 1904, which provided:

That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau (1141).

clearly contemplating that after not less than five stations with sites, buildings, instruments, furniture, supplies, flagstaff, and storm-warning towers and properly equipped had been completed there might then be a sum still remaining which in that case could be used for repair, improvement, and equipment of any other buildings, etc.

We think the auditing department was clearly wrong in its law, and we see no reason why, if a proper examination of the accounts of this department in connection with these appropriations had been made by the auditing department, the facts which we have hereinbefore stated could not have been readily disclosed. If the system in vogue in the auditing department is not such as enables them to readily disclose and ascertain such facts, our judgment is that the system should be changed in order to accomplish that result. If they have an adequate system in vogue we think it should be more energetically and efficiently applied in connection with the disbursements of this Department.

Something should, perhaps, be said as to the circumstances under which this "research institution" has been developed. The committee were anxious to ascertain who was responsible for the origination and development of the "research institution" and carefully examined Professor Moore in the first instance upon that point. He stated that what he had done in connection with the development of this institution was not only by virtue of and under the legal authority of the appropriation referred to, but "also by virtue of conferences with members of the Committee on Agriculture," who had agreed with him that under that authority he had the power to originate and create the plant. (953.)

The CHAIRMAN. Are we to understand, Professor, with reference to the plant to which your attention has been called, on Mount Weather, that so far as that enterprise is concerned the Agricultural Committee were consulted with reference thereto before you embarked thereon, and that the regular development from that time on has been after conversations with and understandings with them?

Professor MOORE. That is the understanding; after a full discussion and understanding with that committee; and with their belief that my authority under the direction of the Secretary was ample to go ahead with that work.

The CHAIRMAN. That was your view of the construction of the law, and they concurred with you in that construction?

Professor MOORE. Yes.

The CHAIRMAN. And that was without any protest on the part of the committee? Was there any dissenting opinion?

Professor MOORE. Not one.

The CHAIRMAN. So that the Committee on Agriculture have, so far as their attention has been called to the subject, acquiesced in this, and the subject was called to their attention in the beginning?

Professor MOORE. The hearings will show that this has been thoroughly gone over.

The CHAIRMAN. And it is a fact that their attention was called to it at the inception?

Professor MOORE. Yes.

The CHAIRMAN. And that there was no protest made so far as you know by any member of the committee?

Professor MOORE. No, sir.

The CHAIRMAN. Against the construction placed on the statute, or the inauguration of the enterprise?

Professor MOORE. Yes; that is true. And my mind is very clear for this reason, that after I had explained the necessity of taking up experimentation, they seemed to be anxious that I should begin such experimentation, and the chairman asked me how much was necessary to be set aside for the purpose—I do not know whether that was taken down by a stenographer or not—and my answer

was that I believed that the authority was ample without any specific amount being set aside for Mount Weather, and they then read that authority for so many buildings, and they said they thought that that authority was wide open to do anything that I wanted to do. (1001-1002.)

And again:

The CHAIRMAN. You say the plans that you discussed. What are we to understand by that—that the general scope of the project or plan was laid out tentatively before the committee in the very beginning?

Professor MOORE. Yes, sir.

The CHAIRMAN. Not that their attention has been called to it as the matter has developed from time to time, but that the general project was discussed with them before you originated the idea?

Professor MOORE. Yes, sir.

The CHAIRMAN. So that the Committee on Agriculture, for instance, when they indorsed the project you have described were fully advised as to the probable scope and the probable expenditure that was involved therein?

Professor MOORE. Not only that, but after the first session of Congress following the beginning of the work on what is now the administration building, my annual report, printed in pamphlet form, contained a complete discussion of all of the problems that we had then in mind to investigate at Mount Weather, and I exploited in that report the whole scheme, wrote it out in detail, and it was printed and in the hands of the committee before the next appropriation was made.

The CHAIRMAN. That was after the origination of the project?

Professor MOORE. After the beginning of the Mount Weather station.

The CHAIRMAN. After the origination of the project?

Professor MOORE. Yes, sir.

The CHAIRMAN. But prior to that time you had a full conference with them in relation thereto?

Professor MOORE. Yes, sir; and they have gone very thoroughly into all these things, as thoroughly as you are going now. (1016.)

While, so far as the construction of the law is concerned and the authority to make this expenditure, we understand that the concurrence or nonconcurrence of the Agricultural Committee would not be a factor in determining the question, that is perhaps a proper consideration in determining where the responsibility for the development of this institution as a moral question ought properly to rest. Professor Moore having thus repeatedly insisted that he was acting all the way along under the advice of the Committee on Agriculture, the committee felt it its duty to call the attention of that committee to the facts and to give them an opportunity of making such statements as they saw fit in relation thereto.

All of the members of the subcommittee of that committee who considered the question of appropriations for the weather stations that could be reached and had any knowledge of the facts were invited to come and did come before the committee. Chairman Wadsworth, of the Committee on Agriculture, in answer to inquiries, stated as follows:

The CHAIRMAN. Then you never concurred with him in the idea that he would be authorized under that appropriation to enter into such construction?

Mr. WADSWORTH. Not to my knowledge. I have not the slightest recollection of it. (1107.)

Mr. Wadsworth called attention to the fact that the first time that he ever heard of the Mount Weather station was during the testimony of Professor Moore before his committee some time in December, 1902, when Professor Moore referred to the fact that he had started a station at Mount Weather, referring to it in the same manner in which he referred to other stations, nothing being stated

that indicated that it was in any way differentiated from the ordinary weather station that he had been in the habit of constructing. (1095-1096.) And it appears that nothing was said at that time by Professor Moore that would indicate that he had any intention of developing the institution which has subsequently grown to these proportions.

Mr. Burleson, another member of the Committee on Agriculture, testified as follows:

The CHAIRMAN. We have been examining the expenditures of the Department of Agriculture, and in connection with that subject we have had occasion to develop the circumstances under which the research institution at Mount Weather has been up to date constructed. Mr. Moore, relying upon the appropriations made in the agricultural bill providing for not less than a certain number of completed stations, furnished, etc., within a certain limit, and having stated to the committee that his construction of those appropriations and the fact that this research institution was being organized had met with the approval of the Committee on Agriculture, we have thought it proper to call the members of the committee who were supposed to be familiar with that subject, so that they might make such statements in relation thereto as they saw fit to make.

Mr. BURLERSON. I was a member of the subcommittee of the Committee on Agriculture which prepared the appropriation bill for the years 1904 and 1905. I am willing to state any fact within my recollection bearing on this subject, though I must confess that my recollection is rather hazy about what actually transpired.

I remember that during the course of the preparation of the first agricultural appropriation bill in which I had any part we had general hearings before the entire committee, and then, after these general hearings had been completed, the subcommittee went into executive session in the preparation of the bill. During the preparation of the bill we had frequent occasion to call before the subcommittee certain chiefs of Bureaus and heads of divisions for the purpose of interrogating them more in detail about specific items in the bill which were under consideration at that particular time.

I remember Mr. Moore coming before the subcommittee. I do not pretend to be able to recall everything that was said. Mr. Moore is a very fluent talker. He presents with great force, persuasive force, any matter in which he is particularly interested. - I remember that in the course of the hearing that we gave him before this subcommittee he spoke of the Mount Weather scheme, if I may so denominate it. I remember he spoke of the results that he expected to accomplish, or rather what he hoped to accomplish. He spoke with great enthusiasm of the scientific meteorological researches that he intended to make there when he had completed this station. After he had concluded what he had to say, I remember some expressions used by Mr. Wadsworth. I remember he spoke of Mr. Moore's enthusiasm, and said that it was our duty to put on the brakes. He spoke of the latitude that Mr. Moore had in the expenditure of money carried in the bill.

Those are facts that I can remember. I was talking with Mr. Wadsworth yesterday or the day before about the matter. He came to me about it. I also spoke to Mr. Scott as we walked down to your committee room a moment ago. Mr. Wadsworth says he has no recollection of any statement being made by Mr. Moore as to where the money to construct and equip the Mount Weather bureau was to come from; and it seems Mr. Scott is rather hazy on the subject—that is, he has no recollection of it. At that time I had in mind asking for one of the weather station buildings, not for my own district, but for a Texas colleague of mine, and consequently was interested to know exactly how far money appropriated for that purpose would go; and I must say that the impression was left on my mind that part of the money to equip and complete Mount Weather was going to come out of the fund or item carrying in the bill the money for buildings at stations.

I can account for the fact that my recollection is a little more distinct than Mr. Wadsworth's and Mr. Scott's about this matter only because it was the first bill I had ever had any hand in preparing on the Agricultural Committee.

The CHAIRMAN. I will ask you whether this impression, which you say you received, that part of the money that was to go into the Mount Weather station was to come from the money that was appropriated for the separate stations, was received from what Mr. Moore said to all the committee, or whether it was a private conversation with yourself?

Mr. BURLERSON. I talked with Mr. Moore a number of times, and I am unable to state positively about it. It may have been that I gathered the impression from

him in private conversation; but my best recollection is that I got the impression in the hearings before the subcommittee while Mr. Moore was making his statement.

The CHAIRMAN. Was the language of the appropriation discussed by either Mr. Moore or yourself with reference to determining whether a fair legal construction would authorize the latitude?

Mr. BURLISON. No such discussion as that took place.

The CHAIRMAN. It was simply a general suggestion?

Mr. BURLISON. It may have been an inference of mine, from some expression that he let fall there, that might not have fastened the attention of the other gentlemen at all, but caught mine because I was particularly interested for the reasons that I have stated.

The CHAIRMAN. Then you would not want to be understood as leaving the impression that you had expressed any opinion upon the scope or construction of the statute?

Mr. BURLISON. On the contrary, I expressed no opinion about it.

The CHAIRMAN. And that particular matter was not a matter that was either discussed or considered?

Mr. BURLISON. In the subcommittee or elsewhere. It was not discussed in the subcommittee by me or any member of the subcommittee or by Mr. Moore, or by me and Mr. Moore elsewhere. (1119.)

Mr. Scott testified as follows:

It was certainly my understanding that when we made an appropriation for "not less than four" or "not more than five" weather bureau stations we meant that separate and complete stations were to be erected at different places over the country.

The CHAIRMAN. Within that limit?

Mr. SCOTT. Within the limit of the appropriation. It never dawned on me that any of the money appropriated by such an item could be diverted for any other purpose than the construction of a station.

The CHAIRMAN. And a completed station?

Mr. SCOTT. And a completed station. I am very clear in the recollection that the question of the construction of that item, as to whether or not it would admit of the diversion of a part of the funds to the institution at Mount Weather, was never broached at a meeting of the committee at which I was present, because, in a vague way, I wondered sometimes where Professor Moore was getting the money to put into that institution, and satisfied myself with the reflection that it must be drawn from some other appropriation bill, just as the funds for the construction of the departmental building now under erection are carried in a bill with which we do not have anything to do. (1123.)

Mr. Henry testified that the first he heard about Mount Weather was at the time of the testimony of Professor Moore referred to in Mr. Wadsworth's testimony. He says:

That was the first that I heard about Mount Weather.

The CHAIRMAN. And then, as you understood, the station had already been constructed in whole or in part?

Mr. HENRY. Well, yes; to a certain extent. The money had been expended there that he had thought of expending elsewhere.

The CHAIRMAN. Was anything said at that time, so far as you remember, with reference to the construction of the appropriation, and as to whether that particular appropriation authorized the beginning of a plant that should be developed from time to time, costing anywhere from two hundred to two hundred and fifty thousand dollars?

Mr. HENRY. I do not recall that there was anything said about that. Of course that was four years ago. What I gathered from it was that it was one of the regular stations he was establishing. (1124.)

Mr. Lamb testified that he remembered the statement referred to by Mr. Wadsworth and also a statement made by Professor Moore before the committee in 1906, and further testified:

The CHAIRMAN. Yes, we have had before us a report of the hearings before your committee in 1906, in which Mr. Moore went over the matter elaborately.

Mr. LAMB. Yes; but the question of authority for doing it was not raised at either time. It seemed to go along, and that question was not raised until, I think, the papers commenced to talk about it. That is my recollection.

The CHAIRMAN. So that your memory would be that the question of authority under any particular appropriation was not discussed in the committee?

Mr. LAMB. No; it was not.

The CHAIRMAN. Or raised by Mr. Moore with the committee?

Mr. LAMB. I am satisfied it was not. (1127.)

These are all the members of the committee that we have been able to reach who were on the subcommittee considering the appropriation bill that had any knowledge of the facts, and we have not been able to find any member of the committee who remembers ever having had any conversation with Professor Moore in relation to the construction of this appropriation or his authority to construct this "research institution" thereunder.

Professor Moore states that while he discussed the general question of the Mount Weather project with the Secretary of the Department of Agriculture, he never discussed the question of the scope of the legislation, which, of course, involved his authority to develop the institution.

So that upon the testimony before us it appears that none of the members of the subcommittee of the Agricultural Committee concur with Professor Moore in agreeing that his construction of the appropriation authorized the building of the "research institution," and so far as his own department is concerned, he had no conference with anyone upon that point.

The members of the Agricultural Committee testified before us in the absence of Professor Moore, with the understanding, however, that if Professor Moore so desired they were to be recalled for the purpose of giving him an opportunity to cross-examine them if he saw fit to do so, and Professor Moore was to be given an opportunity also to make such additional statement as he desired to make. Professor Moore was given the opportunity, declined to have the witnesses recalled for further examination, and submitted an additional statement, which will be found on pages 1128, 1129, and 1130.

In opening his statement Professor Moore calls attention to an error in the testimony of Mr. Wadsworth, and says:

On page 1095, Mr. Wadsworth in giving his testimony stated—

"That was the first intimation (referring to testimony given by Mr. Moore in December, 1902) that we had of the starting of a station at Mount Weather and it will be seen from the language that Mr. Moore himself uses; it was substituted for the Yellowstone Park station, which had been specifically named in the appropriation bill, if my memory is correct."

Mr. Wadsworth is mistaken in his statement that there was a specific appropriation for the creation of a station at Yellowstone Park. It is important that we correct this error; otherwise it would appear that the Secretary of Agriculture and the Chief of the Weather Bureau had taken money that was specifically appropriated by Congress for the creation of a Weather Bureau building at Yellowstone Park and had expended it in the erection of a building at Mount Weather. (1128.)

While we do not think this is a matter of much importance, we agree fully with Professor Moore that if there is an error the error should be corrected and the facts properly stated, and if the error is such as to create a reflection upon the Secretary of Agriculture, for that reason also it should be corrected.

Mr. Wadsworth's testimony was given in 1907, five years after the testimony was given which he was quoting and commenting upon. It is unnecessary to say that it is no part of the duty of Mr. Wads-

worth to keep advised of the details of expenditure in connection with the Weather Bureau. It also should be stated that the statement of Mr. Wadsworth was cautious and qualified, and he expressly limited it by the qualification "if my memory is correct." (1095.)

It is also to be further noted that if Mr. Wadsworth made an erroneous statement he was undoubtedly led into that statement by placing a too implicit reliance upon the statement made by Professor Moore in 1902, practically contemporaneous with the evidence that Professor Moore was giving before his committee, and that Professor Moore's statement related to details as to which it was his duty to keep advised and thoroughly and accurately informed. Under those circumstances, in 1902, testifying about expenditures made in 1902, Professor Moore makes the unqualified statement, in answer to Mr. Wadsworth's question, as follows:

The CHAIRMAN. What are the other places?

Mr. MOORE. Yellowstone Park you had in last year, but by the time we got ready to go ahead it was too late to build. (1095.)

Then Mr. Wadsworth in his testimony before us makes this comment, relying upon Professor Moore's statement:

We had named Yellowstone Park, you see.

It is true that there was error, and it is also true that Professor Moore, in his unqualified statement made contemporaneously with the expenditure as to which he must have been advised, or at least ought to have been advised, made the error, and following his error Mr. Wadsworth in a qualified way made the error which Professor Moore thinks it is necessary to correct, as otherwise it would appear that the Secretary of Agriculture and the Chief of the Weather Bureau had taken money that was specifically appropriated by Congress for the creation of a Weather Bureau building in Yellowstone Park, and had expended it in the erection of a building at Mount Weather.

As a matter of fact, it did appear from the unqualified statement made by Professor Moore in 1902 that he took money that was specifically appropriated by Congress for the creation of a Weather Bureau building at Yellowstone Park and had expended it in the erection of a building at Mount Weather. We concur with Professor Moore in correcting this error, but in order that the facts may be fully appreciated we have found it necessary to call attention to the fact that it was his original error that led Mr. Wadsworth into the qualified and cautious statement that he made.

In explaining how he came to originate the "research institution" in his supplemental statement Professor Moore says:

I stated that in the original purchase of the ground I was able to get such an eligible site for such a small price that I thought it advisable in locating "a mere weather station" to secure this ground, because it might be useful at some time "for establishing a research institution."

According to this supplemental statement it would appear that "a mere weather station" was the principal object in the purchase of the site and the "establishing a research institution" was incidental thereto and in the nature of an afterthought and not necessarily involved in the original purpose.

The testimony from which Professor Moore quotes does not appear to us, however, to bear quite that construction. From his statement

before the Agricultural Committee, January 12, 1906, the hearings show that on that occasion he said:

Now, I said, "I will buy that because it will be useful to the Government at some time for establishing a research institution, and if it is not utilized for that it will be useful as a mere weather station." (1097.)

If the order of statement indicates the intention in his mind, it would appear by his statement in 1906, that "establishing a research institution" was the principal object contemplated in the purchase of the lot and the fact that it might be "useful as a mere weather station" was incidental thereto and suggested a useful purpose in case the research institution purpose was abandoned, and in this connection it may be pertinent to suggest that no especially good reason is perceived for the purchase of 90 acres of land for "a mere weather station." In fact, it seems to us that the purchase of 90 acres of land is rather more consistent with the predetermined purpose to develop an extensive "research institution."

It is true that Professor Moore, in his report for 1903, elaborately described what he called the "research institution" or "research observatory." In his report for 1903, made after the initial expenditures had been made, he says "that it had been thought proper to found a research observatory at Mount Weather," which certainly indicates that that particular observatory was founded and originated for that purpose, and not for the purpose of being a "mere weather station."

In this report for 1903 he makes reference to only one building, which he calls an observatory building, and describes it as being occupied and filled with all kinds of instruments and apparatus involved in his research institute proposition. Instead of eight buildings and a kite shelter, but one building is apparently indicated in this elaborate report of 1903. It is significant to note that although he now insists that at the time he originated this institution he discussed the question of authority with the Committee on Agriculture, that nothing is said in this report about his authority or the appropriation under which he expects to develop the institution.

Not a word is said in the report about the aggregate expense involved in the enterprise in the matter of construction and equipping, or the annual expense of maintenance, and while it is true that on December 18, 1903, he wrote each member of the committee, asking them to read his report, there is not a word in his letter that directs attention to this institution, the authority under which it was to be constructed, or the charge it was to make upon the Treasury.

In his supplemental statement Professor Moore very properly calls attention to the fact that in his statement before the committee in 1906 he stated:

As a result of that (referring to his statements before the subcommittee three years before) the committee—I think you, Mr. Chairman—asked how much money I wanted to go ahead with that work the following year in building additional buildings. I said: "We do not want any additional appropriation; we want an authority." I said that if you left the authority open, as it is now and as it was then, we could build a little each year.

Mr. Lamb then stated: "I recollect that."

Professor Moore proceeded to say:

Yes; and in that way we would gradually lead up to this institution. So that the committee was well informed before we began as to what our general intention was, and the committee seemed to be favorable to it. Since then we have built one or two buildings, usually one of these five buildings has gone at Mount Weather, etc. (1130.)

These statements appear to have been made without any question or any exception to their accuracy being taken by any member of the committee, and they legitimately give rise to an inference that the question of authority had at least been indirectly referred to at some previous time before some members of the committee, although it may be, if Professor Moore simply assumed at that time that he had such authority and so stated to the committee, that the question of authority may not have been then opened or discussed, especially in view of the fact that he did not ask for more authority.

This statement of his, however, made without protest or exception on the part of any member of the committee, is the only circumstance that we find in the testimony tending to corroborate his suggestion that he originally discussed the question of the construction of the appropriation with the members of the Agricultural Committee.

We have felt it our duty to give this brief analysis of the testimony so that whoever might be interested could form an intelligent judgment with reference to the responsibility for the development of this institution.

The administration building has been fitted up so that it furnishes accommodations for Professor Moore and his secretary when he has occasion to occupy it. He goes there along in June and stays until about the end of August each year. There he receives his official work and passes upon it, and in that time he works out the "plans for the development of this institution; and, furthermore, I am able," he says, "as the law compels, to superintend the building operations." (1004-1005.)

Mount Weather has an elevation of 1,725 feet above sea level, is 58 miles by rail from Washington, and 6 by wagon up the mountain. The observatory buildings are about 1,020 feet higher than the railroad station at Bluemont.

Although unauthorized by law, we have this institution and equipment as it stands. Our opinion is that when the head of this Bureau works out any other plans for its further development that such plans, with the purpose contemplated and the cost involved, should be communicated to Congress and the plan approved and the amount of appropriation therefor be specifically made from time to time before any further additions are made thereto. It is proper to state in this connection that every dollar disbursed for this purpose has been accurately and properly accounted for.

I am not aware of anything in the hearings that sustains the statement of the committee that "He talked the matter over with the Secretary of Agriculture and they decided that the first thing to do was to write out the scheme and lay it before the Committee on Agriculture." It is proper to state that the members of the committee making the report of the Committee on "Mount Weather" are Messrs. Samuel, Flood, Candler, Davey, and Davis.

CHARLES E. LITTLEFIELD.



